



# **NAVAL POSTGRADUATE SCHOOL**

**MONTEREY, CALIFORNIA**

## **THESIS**

**PUBLIC HEALTH PLANNING FOR VULNERABLE  
POPULATIONS AND PANDEMIC INFLUENZA**

by

Wendy K. Cameron

December 2008

Thesis Advisor:  
Co-Advisor:

Richard Bergin  
Robert Josefek

**Approved for public release; distribution is unlimited**

THIS PAGE INTENTIONALLY LEFT BLANK

<b>REPORT DOCUMENTATION PAGE</b>			<i>Form Approved OMB No. 0704-0188</i>	
Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instruction, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188) Washington DC 20503.				
<b>1. AGENCY USE ONLY (Leave blank)</b>		<b>2. REPORT DATE</b> December 2008	<b>3. REPORT TYPE AND DATES COVERED</b> Master's Thesis	
<b>4. TITLE AND SUBTITLE</b> Public Health Planning for Vulnerable Populations and Pandemic Influenza			<b>5. FUNDING NUMBERS</b>	
<b>6. AUTHOR(S)</b> Wendy K. Cameron				
<b>7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)</b> Naval Postgraduate School Monterey, CA 93943-5000			<b>8. PERFORMING ORGANIZATION REPORT NUMBER</b>	
<b>9. SPONSORING /MONITORING AGENCY NAME(S) AND ADDRESS(ES)</b> N/A			<b>10. SPONSORING/MONITORING AGENCY REPORT NUMBER</b>	
<b>11. SUPPLEMENTARY NOTES</b> The views expressed in this thesis are those of the author and do not reflect the official policy or position of the Department of Defense or the U.S. Government.				
<b>12a. DISTRIBUTION / AVAILABILITY STATEMENT</b> Approved for public release; distribution is unlimited			<b>12b. DISTRIBUTION CODE</b> A	
<b>13. ABSTRACT (maximum 200 words)</b>  This thesis addresses planning for vulnerable populations, those segments of each community that are normally independent but that may require special assistance during a health emergency such as an influenza pandemic. Analysis of plans from sixty of Georgia's 159 counties provides insight into the extent to which vulnerable populations are defined and identified; relevant agencies are engaged in planning; and opportunities are identified for improvement. Recommended strategies will enable local jurisdictions to more effectively plan for vulnerable populations. Some strategies have now been implemented and others are in progress.				
<b>14. SUBJECT TERMS</b> Public Health Planning, Pandemic Influenza; Vulnerable Populations, Georgia			<b>15. NUMBER OF PAGES</b> 79	
			<b>16. PRICE CODE</b>	
<b>17. SECURITY CLASSIFICATION OF REPORT</b> Unclassified	<b>18. SECURITY CLASSIFICATION OF THIS PAGE</b> Unclassified	<b>19. SECURITY CLASSIFICATION OF ABSTRACT</b> Unclassified	<b>20. LIMITATION OF ABSTRACT</b> UU	

NSN 7540-01-280-5500

Standard Form 298 (Rev. 2-89)  
Prescribed by ANSI Std. Z39-18

THIS PAGE INTENTIONALLY LEFT BLANK

**Approved for public release; distribution is unlimited**

**PUBLIC HEALTH PLANNING FOR VULNERABLE POPULATIONS AND  
PANDEMIC INFLUENZA**

Wendy K. Cameron  
Syndromic Surveillance Program Coordinator  
Georgia Department of Human Resources, Division of Public Health, Atlanta  
B.A., University of Akron, 1995  
M.P.H., University of Akron, 2003

Submitted in partial fulfillment of the  
requirements for the degree of

**MASTER OF ARTS IN SECURITY STUDIES  
(HOMELAND SECURITY AND DEFENSE)**

from the

**NAVAL POSTGRADUATE SCHOOL  
December 2008**

Author: Wendy K. Cameron

Approved by: Richard Bergin  
Thesis Advisor

Robert Josefek  
Co-Advisor

Harold A. Trinkunas, Ph.D.  
Chairman, Department of National Security Affairs

THIS PAGE INTENTIONALLY LEFT BLANK

## **ABSTRACT**

This thesis addresses planning for vulnerable populations, those segments of each community that are normally independent but that may require special assistance during a health emergency such as an influenza pandemic. Analysis of plans from sixty of Georgia's 159 counties provides insight into the extent to which vulnerable populations are defined and identified; relevant agencies are engaged in planning; and opportunities are identified for improvement. Recommended strategies will enable local jurisdictions to more effectively plan for vulnerable populations. Some strategies have now been implemented and others are in progress.

THIS PAGE INTENTIONALLY LEFT BLANK



## TABLE OF CONTENTS

<b>I.</b>	<b>INTRODUCTION.....</b>	<b>1</b>
<b>A.</b>	<b>PANDEMIC INFLUENZA .....</b>	<b>1</b>
<b>B.</b>	<b>PUBLIC HEALTH PREPAREDNESS AND PLANNING IN THE UNITED STATES.....</b>	<b>6</b>
1.	Organization of the Pandemic Planning Efforts in Georgia.....	6
2.	Public Health Preparedness in Georgia.....	7
3.	Additional Considerations: Planning for Specific Populations .....	9
4.	Guidance Documents to Enable Planning for Vulnerable Populations .....	10
5.	Current Planning for Vulnerable Populations in Georgia.....	11
6.	Assessing the Plans.....	13
<b>II.</b>	<b>LITERATURE REVIEW .....</b>	<b>15</b>
<b>A.</b>	<b>PREVENTING THE EMERGENCE OF ADDITIONAL SPECIAL NEEDS POPULATIONS DURING PUBLIC HEALTH EMERGENCIES.....</b>	<b>15</b>
<b>B.</b>	<b>HOW ARE VULNERABLE SEGMENTS OF THE POPULATION DEFINED, IDENTIFIED AND ENGAGED? .....</b>	<b>16</b>
<b>C.</b>	<b>WHAT PLANNING PROVISIONS ARE REQUIRED FOR GROUPS OR INDIVIDUALS, PRIOR TO EVENTS OF PUBLIC HEALTH SIGNIFICANCE, TO ENSURE THEIR SURVIVAL AND RECOVERY?.....</b>	<b>17</b>
<b>D.</b>	<b>PUBLIC HEALTH PREPAREDNESS AND THE ROLE OF INDIVIDUAL CITIZENS.....</b>	<b>18</b>
<b>E.</b>	<b>PUBLIC HEALTH PREPAREDNESS AND THE ROLE OF PUBLIC SAFETY AND OTHER GOVERNMENTAL AND NON GOVERNMENTAL ORGANIZATIONS.....</b>	<b>19</b>
<b>F.</b>	<b>AFTER ACTION REPORTS AND IDENTIFIED VULNERABLE OR SPECIAL NEEDS POPULATIONS ISSUES .....</b>	<b>20</b>
1.	Emerging Guidance .....	21
<b>III.</b>	<b>METHODOLOGY .....</b>	<b>23</b>
<b>A.</b>	<b>BACKGROUND .....</b>	<b>23</b>
<b>B.</b>	<b>STUDY DESIGN.....</b>	<b>23</b>
1.	Sample Size .....	24
2.	Survey Instrument .....	24
3.	Data Collection .....	24
4.	Data Analysis.....	25
<b>IV.</b>	<b>RESULTS .....</b>	<b>27</b>
<b>A.</b>	<b>RESULTS .....</b>	<b>27</b>
1.	Survey Questions Six, Eight, and Nine .....	27
a.	Results Questions Six, Eight, and Nine .....	27

	<i>b.</i>	<i>Interpretation Survey Questions Six, Eight, and Nine</i> .....	29
	<i>c.</i>	<i>Implications Survey Questions Six, Eight, and Nine</i> .....	29
2.		<b>Survey Questions Ten to Fifteen</b> .....	30
	<i>a.</i>	<i>Results Survey Questions Ten to Fifteen</i> .....	30
	<i>b.</i>	<i>Interpretation of Survey Questions Ten to Fifteen</i> .....	32
	<i>c.</i>	<i>Implications of Questions Ten through Fifteen</i> .....	33
3.		<b>Survey Questions Sixteen through Twenty-Five</b> .....	33
	<i>a.</i>	<i>Results Survey Questions Sixteen through Twenty-Five</i> .....	33
	<i>b.</i>	<i>Interpretation Survey Questions Sixteen through Twenty-five</i> .....	36
	<i>c.</i>	<i>Implications Survey Questions Sixteen through Twenty-Five</i> .....	36
V.		<b>RECOMMENDATIONS AND CONCLUSIONS</b> .....	39
	A.	<b>THE PREPARATION FOR RESPONSE IS NOT COMPLETE</b> .....	39
	B.	<b>WHY IT IS HARD TO PLAN</b> .....	39
	C.	<b>THINGS THAT CAN BE DONE</b> .....	41
	D.	<b>WHAT GEORGIA IS DOING</b> .....	41
	E.	<b>CONCLUSIONS</b> .....	44
APPENDIX I.		<b>LEVEL OF CARE DEFINITIONS</b> .....	47
APPENDIX II.		<b>SURVEY TOOL</b> .....	49
APPENDIX III.		<b>STANDARD OPERATING GUIDE (DRAFT)</b> .....	51
LIST OF REFERENCES		.....	57
INITIAL DISTRIBUTION LIST		.....	61

## LIST OF FIGURES

Figure 1.	Comparison of Seasonal Versus Pandemic Influenza .....	3
Figure 2.	Anticipated Impact of an Influenza Pandemic in Georgia.....	5
Figure 3.	Populations Named in County Pandemic Plans.....	34

THIS PAGE INTENTIONALLY LEFT BLANK

## LIST OF TABLES

Table 1.	Strategies and Populations .....	28
Table 2.	Supporting Mental Health Services .....	31
Table 3.	Supporting Aging Services .....	31
Table 4.	Supporting Family and Children’s Services .....	31
Table 5.	Partner Agencies .....	32
Table 6.	Points of Contact.....	32
Table 7.	Shelter Support Requirements .....	35
Table 8.	Environmental Health Support .....	35
Table 9.	Nursing Support .....	35
Table 10.	Pharmaceutical Support .....	35
Table 11.	Maintaining Essential Services .....	35
Table 12.	Incident Management System Identified .....	35
Table 13.	Addressing CERTs and MRCs .....	36

THIS PAGE INTENTIONALLY LEFT BLANK

## **LIST OF ACRONYMS AND ABBREVIATIONS**

ASTHO	Association of State and Territorial Health Officers
CBO	Community Based Organization
CERTS	Community Emergency Response Team
GDHR	Georgia Department of Human Resources
GDPH	Georgia Division of Public HealthEMS Emergency Medical Services
ESF	U.S. Government Emergency Support Function
FBO	Faith Based Organization
GEMA	Georgia Emergency Management Agency
MHDDAD	Division of Mental Health, Developmental Disabilities, and Addictive Diseases
MRC	Medical Reserve Corps
NGO	Non Governmental Organization PH          Public Health
SOG	Standard Operating Guide
SOP	Standard Operating Procedures

THIS PAGE INTENTIONALLY LEFT BLANK



## ACKNOWLEDGMENTS

Attending the Center for Homeland Defense and Security's (CHDS) first cohort in the National Capitol Region has been an honor and a privilege, and I am so grateful for the opportunity. The eighteen month process has not been without significant personal challenges, and I want to thank the CHDS faculty, staff, and all of my classmates for encouraging me and helping me to learn so much throughout our time together.

I am particularly indebted to my thesis advisors, Richard Bergin and Robert Josefek, and my classmates Robert Mahoney, Sharon Stanley, Beverly Pritchett, and John Wilson. Of course, none of this would have ever happened if it were not for the example and inspiration of Chester Lee Smith and Annette Neu, alumni of this program and my dearest friends, who went to CHDS before me and created the vision that fostered my desire to participate in the program. Subsequently they have provided continuous encouragement, support and words of wisdom, with only relatively few admonishments related to finishing my thesis on time.

My parents, Bill and Sandra Payne graciously cared for my daughters, Ashley and Katie, during all but the summer in residence sessions and helped me to feel completely at ease during our separation (THANK YOU!). My daughters Ashley and Katie have been a continuous source of joy and inspiration as I have attended the course and their willingness to "share" me while I did coursework continues to amaze and impress me. I cannot wait to have more time to spend with them! I must also thank their father, John Cameron, for a couple of key pep talks, especially when I really questioned whether I could muster enough to finish the program, and his assistance with the children's care during the summer sessions and the week of graduation.

It would be remiss for me to neglect to thank my "fearless leaders" from the Georgia Division of Public Health, Susan Lance, Cherie Drenzek, Pat O'Neal, and Bruce Jeffries, who have encouraged and supported my participation and attendance while I have been in the program. I must thank Manxia Wu and Betsy Kagey, who helped me master my methodology and rescued me from my thesis. My friend and co worker, Karl

Soetebier, has continued to remind me to “just keep swimming” and has helped me with everything from my thesis survey to acting as a sounding board during its writing and throughout the program.

My thesis is dedicated to all of the public health practitioners out there in the “real world” trying to make their jurisdictions safe and well, doing so much with so little.

## **I. INTRODUCTION**

### **A. PANDEMIC INFLUENZA**

In 1918 the influenza pandemic brought significant changes to daily life in the United States. Communities attempted to cope with the burgeoning number of dead and the disruption of society as they dealt with the disease as it was then understood. Now, the country faces the possibility of another influenza pandemic, which is anticipated to occur at anytime. Seasonal influenza causes an epidemic of disease that results in approximately 36,000 deaths annually in the United States alone.<sup>1</sup> In contrast, the last great pandemic of 1918 resulted in the death of millions of otherwise healthy, young adults who lost their lives to a variant strain of influenza, which later became known as the Spanish flu. An estimated twenty to fifty million may have died as a result of what was a previously unknown virus.

According to the official United States government (USG) pandemic influenza website, “A pandemic is a global disease outbreak. An influenza pandemic occurs when a new influenza A virus emerges, for which there is little or no immunity in the human population, and begins to cause serious illness, and then spreads easily person-to-person worldwide.”<sup>2</sup> Since the emergence of the H5N1 virus, commonly known as “avian flu” or “bird flu,” health authorities worldwide have anticipated that another great pandemic could be imminent. The threat posed to the United States and the world at large cannot be overstated. Again the USG pandemic flu website warns that “Influenza pandemics are remarkable events that can rapidly infect virtually all countries. Once international spread begins, influenza pandemics are considered unstoppable because the virus spreads very

---

<sup>1</sup> Centers for Disease Control and Prevention, “Key Facts about Seasonal Influenza (Flu),” The Influenza, <http://www.cdc.gov/flu/keyfacts.htm> (accessed November 28, 2008).

<sup>2</sup> U.S. Department of Health and Human Services, “What is an Influenza Pandemic?” (March 21, 2007) <http://www.pandemicflu.gov/faq/pandemicinfluenza/2008.html> (accessed November 8, 2008).

rapidly by coughing or sneezing. The fact that infected people can share the virus before symptoms appear adds to the risk of international spread via travelers.”<sup>3</sup>

There are significant public health implications that come from seasonal influenza. Every year the public is cautioned by health officials,

Influenza (the flu) is a contagious respiratory illness caused by influenza viruses. It can cause mild to severe illness, and at times can lead to death. The best way to prevent the flu is by getting a flu vaccination each year. Every year in the United States, on average 5% to 20% of the population gets the flu; more than 200,000 people are hospitalized from flu complications, and; about 36,000 people die from flu. Some people, such as older people, young children, and people with certain health conditions, are at high risk for serious flu complications.<sup>4</sup>

Figure 1 below compares seasonal influenza and pandemic influenza to provide the reader with a better understanding of the challenges associated with pandemic influenza.

Seasonal Flu	Pandemic Flu
Outbreaks follow predictable seasonal patterns; occurs annually, usually in winter, in temperate climates	Occurs rarely (three times in 20th century - last in 1968)
Usually some immunity built up from previous exposure	No previous exposure; little or no pre-existing immunity
Healthy adults usually not at risk for serious complications; the very young, the elderly and those with certain underlying health conditions at increased risk for serious complications	Healthy people may be at increased risk for serious complications
Health systems can usually meet public and	Health systems may be overwhelmed

<sup>3</sup> U.S. Department of Health and Human Services, “Why are pandemics such Dreaded Events?” (March 21, 2007) <http://www.pandemicflu.gov/faq/pandemicinfluenza/1108.html> (accessed November 8, 2008)

<sup>4</sup> Centers For Disease Control and Prevention, “Influenza: The Disease,” Centers for Disease Control and Prevention, <http://www.cdc.gov/flu/about/disease/index.htm> (access November 28, 2008).

patient needs	
Vaccine developed based on known flu strains and available for annual flu season	Vaccine probably would not be available in the early stages of a pandemic
Adequate supplies of antivirals are usually available	Effective antivirals may be in limited supply
Average U.S. deaths approximately 36,000/yr	Number of deaths could be quite high (e.g., U.S. 1918 death toll approximately 675,000)
Symptoms: fever, cough, runny nose, muscle pain. Deaths often caused by complications, such as pneumonia.	Symptoms may be more severe and complications more frequent
Generally causes modest impact on society (e.g., some school closing, encouragement of people who are sick to stay home)	May cause major impact on society (e.g. widespread restrictions on travel, closings of schools and businesses, cancellation of large public gatherings)
Manageable impact on domestic and world economy	Potential for severe impact on domestic and world economy

Figure 1. Comparison of Seasonal Versus Pandemic Influenza<sup>5</sup>

When speaking in Georgia, at the state's Pandemic Planning Summit in January of 2006,<sup>6</sup> Health and Human Services Secretary Mike Leavitt provided comments regarding the challenges facing Georgia during the 1918 pandemic,

It probably arrived during the first week of October 1918, and then spread like a wildfire throughout the state. In just three weeks, from October nineteenth to November ninth, there were more than 20,000 cases and more than 500 deaths. Towns and communities were terribly affected. Augusta was the hardest-hit city in the state. Trained nurses were far too few for the many needs, and they too were struck down by the pandemic.

<sup>5</sup> U.S. Department of Health and Human Services, "How does Seasonal Flu Differ from Pandemic Flu?" [http://www.pandemicflu.gov/general/season\\_or\\_pandemic.html](http://www.pandemicflu.gov/general/season_or_pandemic.html) (accessed November 8, 2008).

<sup>6</sup> U.S. Department of Health and Human Services, "Secretary Mike Leavitt Joins Governor Sonny Perdue at Georgia Pandemic Planning Summit, USA," *Medical News Today*, (January 16, 2006) <http://www.medicalnewstoday.com/articles/36234.php> (accessed 29 November 2008).

As a consequence, nursing students were put in charge of shifts at a local hospital. Schoolteachers were enlisted to act as nurses, cooks and hospital clerks, at an emergency hospital constructed on a local fairground. In Athens, the University of Georgia announced that it was indefinitely suspending classes.

In the town of Quitman, stringent rules were established to combat influenza, which touched almost every facet of life: Public gatherings, including indoor funerals, were prohibited

- Public spitting was outlawed
- The serving of any beverage was prohibited in public places, unless it was poured into sanitary cups or served in glasses that were thoroughly sterilized each time they were used
- The accumulation of dust in places of business was prohibited. Merchants were ordered to keep their floors damp enough to keep the dust down
- All cases of influenza were ordered quarantined. In places where the disease had struck, a placard stating "influenza" had to be displayed.

Final casualty figures in Georgia will never be known. After making their initial reports, state officials were simply too overwhelmed to tell the U.S. Public Health Service anything more.<sup>7</sup>

The concern that avian flu virus could be an ideal candidate for a pandemic strain of influenza has led the world to begin preparing for a possible influenza pandemic. In the United States, federal, state, and local jurisdictions have been planning and preparing to cope with an influenza pandemic that is anticipated to be as severe as the 1918 pandemic. However, it is possible that the virus which causes avian flu could evolve to become efficiently transmitted between humans, but that it could also be less virulent and cause much less morbidity and mortality than the pandemic of 1918.<sup>8</sup> Even so, most are preparing for the worst because the avian flu virus has been extremely virulent thus far.

---

<sup>7</sup> U.S. Department of Health and Human Services, "Georgia State Summit," *History Supplement. In the Great Pandemic of 1918: State by State*, (January 13, 2006) <http://www.pandemicflu.gov/general/greatpandemic.html#georgia> (accessed November 8, 2008).

<sup>8</sup> U.S. Department of Health and Human Services, "The Pandemic," *The Great Pandemic: The United States in 1918-1919*, [http://1918.pandemicflu.gov/the\\_pandemic/index.htm](http://1918.pandemicflu.gov/the_pandemic/index.htm) (accessed October 15, 2008)

The prevailing thought is that the avian flu virus may evolve to be more easily transmitted between humans, and it is likely to retain the virulence it has already demonstrated.<sup>9</sup>

In Georgia, the anticipated impact of a severe pandemic with characteristics similar to the 1918 strain of virus is staggering. The table below reflects the potential morbidity and mortality, based upon the virulence of the strain that emerges. It is possible that a less virulent virus causing pandemic will emerge as illustrated in middle the column in Figure 2 below. Even those numbers would create a tremendous burden on the healthcare system and cause significant disruption to society. A severe pandemic is anticipated to create unimaginable burdens for the healthcare system as well as to bring the normal functioning of society to a halt.

<b>Impact of an Influenza Pandemic in Georgia</b> <small>Assuming Georgia population of 9.1 million (3% of U.S.) people</small>		
Illness Characteristic	Moderate (1957/68-like)	Severe (1918-like)
Total ill (30% population)	2,700,000	2,700,000
Outpatients (50% ill)	1,350,000	1,350,000
Hospitalized	26,000	297,000
ICU cared	3,900	44,600
Ventilated	2,000	22,300
Deaths	6,300	57,100






Figure 2. Anticipated Impact of an Influenza Pandemic in Georgia<sup>10</sup>

<sup>9</sup> Azizul Haque, Didier Hober, Lloyd H. Kasper, "Confronting Potential influenza A (H5N1) Pandemic with Better Vaccines," *Emerging Infectious Diseases* 13, no. 10 (2007) Center for Disease Control, <http://www.cdc.gov/EID/content/13/10/1512.htm>.

<sup>10</sup> Susan Temporado Cookson, Avian Pandemic Influenza, (presentation Governor's Emergency Management Conference, Savannah, Georgia, May 5, 2006.)

## **B. PUBLIC HEALTH PREPAREDNESS AND PLANNING IN THE UNITED STATES**

The United States government has recognized that pandemic influenza poses a serious threat to the country, the citizens, and the economy; and, thus, it has provided legislative and, subsequently, financial support and guidance to state and local jurisdictions to enable and ensure the appropriate planning for pandemic influenza occurs.<sup>11</sup> Public health began funding pandemic influenza preparedness in 2006 as a component of the Center's for Disease Control and Prevention (CDC) Emergency Preparedness Cooperative Agreement. The United States Department of Health and Human Services (DHHS), Assistant Secretary for Preparedness and Response (ASPR) continues to provide funding to hospitals through state public health preparedness offices. Legislation in the form of the Pandemic All Hazards Preparedness Act (PAHPA) continued the funding that has aided states and locals in planning beginning in January 2007. In addition, the recent federal guidance to state and locals further explicates the roles and responsibilities that jurisdictions must embrace in preparation for pandemic influenza.<sup>12</sup>

### **1. Organization of the Pandemic Planning Efforts in Georgia**

Georgia's Governor Sonny Perdue, by Executive Order, has established state agency responsibilities for Emergency Support Functions (ESF). The Georgia Emergency Management Agency (GEMA) is designated as the state's lead agency for coordinating the mitigation, preparation, response and recovery activities of state agencies. Its main tool for accomplishing this is the Georgia Emergency Operations Plan, also known as the GEOP. This document further defines agency requirements within the support functions. The Department of Human Resources/ Division of Public Health is the lead agency for Emergency Support Function- 8, public health and medical services. The Emergency

---

<sup>11</sup>U.S. Department of Health and Human Services, "State and Local Government Planning and Response Activities," <http://www.pandemicflu.gov/plan/states/index.html> (accessed November 8, 2008).

<sup>12</sup>U.S Department of Health and Human Services, *Federal Guidance to Assist States in Improving State-Level Pandemic Influenza Operating Plans* (March 2008), <http://www.pandemicflu.gov/news/guidance031108.pdf> (accessed November 8, 2008).



Operations Plan also addresses additional “incident annexes,” which are hazard\_specific (such as a response during a pandemic influenza or other scenario). These annexes typically include or reference numerous supporting plans and documents.<sup>13</sup> Governor Perdue has also used an executive order to establish a state level command group to direct response to disasters. In the Executive Order the Director of the Division of Public Health has been identified as a member of the designated command group. Thus decreed, the Georgia Division of Public Health has been the lead agency for all pandemic planning efforts in the state.<sup>14</sup>

As alluded to previously, grant monies from DHHS and CDC have been allocated to states to facilitate pandemic influenza planning. The state public health entities received these funds and facilitated their use by state and local agencies. The funding was tied to specific activities for each jurisdiction, including requirements that non-public health and non- medical agencies participate in pandemic planning in partnership with public health.

## **2. Public Health Preparedness in Georgia**

Public health preparedness at the state level includes, but is not limited to the following activities (the focus of the thesis is planning the discussion will be limited to activities in that arena):

- Planning
- Procuring anti viral stockpiles
- Education and Training
- Exercises
- Technical support to health districts

---

<sup>13</sup> Georgia Emergency Management Agency, Georgia’s Emergency Operations Plan (January 2008) [http://www.gema.ga.gov/ohsgemaweb.nsf/46f83d65829d0a698525711f004a23d7/30c5ce607328558f8525720900627e3a/\\$FILE/GEOP%20Updated%20January%202008.pdf](http://www.gema.ga.gov/ohsgemaweb.nsf/46f83d65829d0a698525711f004a23d7/30c5ce607328558f8525720900627e3a/$FILE/GEOP%20Updated%20January%202008.pdf) (accessed November 8, 2008).

<sup>14</sup> Sonny Perdue, “State of Georgia, Executive Order,” State of Georgia, (25 August 2004) [http://gov.ga.gov/gov/exorders/2004/aug/08\\_25\\_04\\_01.pdf](http://gov.ga.gov/gov/exorders/2004/aug/08_25_04_01.pdf) (accessed November 29, 2008).

- Technical support to medical providers- (Medical Associations, ASPR, etc,)
- Risk communications
- Funding, including grants coordination
- Coordination among and between state agencies and organizations
- Coordination with federal agencies
- Coordination with multi- state, regional partners
- Laboratory and laboratory support <sup>15</sup>

One of the focus areas for the Georgia Division of Public Health's (GDPH) emergency coordinators has been to create overarching plans for the state articulating its relationship to other state agencies, its participation in resolution of regional concerns, and its guidance to the eighteen health districts (HD) and 159 counties of Georgia as they develop emergency operations plans (EOPs) and supporting incident annexes for their jurisdictions. One of the annexes in each plan is devoted to the expected outcomes of a pandemic influenza. It is meant to provide guidance to government and non-government response agencies as they in turn plan for pandemic influenza.

The eighteen HDs are administrative regions created by GDPH. Each HD has state and county funded positions, including a health district emergency coordinator (EC) who is the lead planner for public health emergency preparedness in his or her jurisdiction. At the HD level, ECs work to engage all sectors of the community in planning and coordination initiatives in each of the counties they serve to increase their jurisdictions' ability to survive and recover from public health emergencies, including pandemic influenza.

Planning also occurs at the health district (HD) level and involves operationalizing activities such as distributing and dispensing the contents of the Strategic National Stockpile to the citizenry. This discussion of their activities and responsibilities will be limited to planning for pandemic influenza. Public health

---

<sup>15</sup> Lee Smith, personal communication, October 15, 2008.

emergency coordinators in Georgia have been tasked with coordinating pandemic influenza planning efforts for their respective jurisdictions. This includes engaging stakeholders from other agencies and organizations who will be included in response activities should pandemic occur.

### **3. Additional Considerations: Planning for Specific Populations**

A segment of the population that has gained considerable attention after the 2005 hurricane experiences of Louisiana, Mississippi, and Texas is that group increasingly known as the vulnerable population. The fallout from Hurricane Katrina has shown that there is a lack of clear definition of who is likely to need additional assistance, as well as a lack of precise identification of where these individuals are situated in a given jurisdiction. In contrast, public health and emergency management planners are typically very well aware of the individuals in their respective jurisdictions that are for example, dialysis dependant (or individuals that need special medical assistance) to evacuate in the event of a hurricane. In the past, planners may have assumed that individuals that do not have documented special medical needs would somehow take care of themselves, and planners have focused their planning efforts on the general population with specific contingencies for the relatively few others.

Katrina demonstrated that many of those considered individuals that could be called vulnerable are somewhat invisible to planners, and consideration for how to support them in a pandemic or in other emergency events has not been well-thought out. This constituency has little in the way of resources to bolster its own resiliency and during an event it is likely to be forgotten in the early stages of the response activities. A review of the events surrounding Katrina underscore this problem and can be used as a basis for considering how effectively Georgia has prepared to build resiliency in its vulnerable populations prior to pandemic influenza as well as during and following the initial wave of illness.

#### **4. Guidance Documents to Enable Planning for Vulnerable Populations**

Currently, there is no official federal guidance or planning requirements for state, health district, or county public health planners to definitively identify vulnerable populations and the arrangements that must be made for them. Several public health working groups at the national level have identified the need for specific planning guidance, and the Association of State and Territorial Health Officers (ASTHO) has produced a document providing guidance for states and municipalities<sup>16</sup> that are planning for vulnerable populations in their jurisdictions. In spite of a general awareness in the public health community of the need to determine the best approach to define, identify, and engage vulnerable populations in the planning process; the degree to which detailed operational plans are in place for these groups varies tremendously from community to community, nationally, and as well as within state and local jurisdictions.

Public health and other planners at the federal, state and local levels have neither succinctly defined nor differentiated the nuances among the groups characterized as special needs in comparison to groups that are vulnerable for the purposes of preparing for public health response activities during emergencies. An important point to consider is that vulnerable populations who may be able to maintain independence or autonomous function in the absence of crisis will likely be unable to function without assistance during an emergency such as an influenza pandemic. Failing to consider this during the planning process may debilitate effective response efforts when pandemic or other emergencies occur and those plans are implemented. When assessing the needs and characteristics of their particular communities, planners who wish to plan effectively must consider the many individuals and groups that may not need special assistance now, but will likely require significant aid during and following an emergency, such as an influenza pandemic. Not factoring the needs of these vulnerable populations into the planning process will likely result in unnecessary morbidity and mortality in the vulnerable populations that are impacted by pandemic influenza.

---

<sup>16</sup> ASTHO, “At Risk Populations and Influenza: Planning Guidance for State, Territorial, Tribal, and Local Health Departments” (draft for public comment April 15, 2008) [http://www.astho.org/pubs/ARPP\\_Guidance\\_041508.pdf](http://www.astho.org/pubs/ARPP_Guidance_041508.pdf) (accessed April 15, 2008).

In addition to the vulnerable populations that function somewhat independently during normal times, there are those populations that receive some type of assistance from a government agency, a non-profit organization, or a faith or community based organization to address specific circumstances / or needs such as supplementary income, supplementary nutritional programs for children or medical care. In spite of this assistance, these persons are mostly autonomous. During an emergency, such as an influenza pandemic, these populations / persons will continue to require assistance and support from agencies that routinely provide services to them. Whether or not those agencies have made contingency plans and also the detail and sufficiency of those plans will be of great significance to the individuals that routinely rely upon these agencies to meet day to day requirements.

## **5. Current Planning for Vulnerable Populations in Georgia**

Currently, Georgia's public health preparedness planners identify the "special medical needs" populations according to the intentionally restrictive definition created by the American Red Cross (ARC) to determine shelter placement during disaster response. "Special needs" is defined by the ARC as having "level three" and "level four" medical care requirements, thereby qualifying for "special needs" shelters (for explanation of levels see appendix 1). A special needs designation of "level one" and "level two" are able to be housed in a general population shelter, and "level five" indicates that a person requires hospitalization. Special needs populations as defined for the purposes of planning in Georgia are not the focus of this thesis because a significant amount of effort is already dedicated to defining, identifying, and planning for these individuals who often have more clearly defined and documented medical conditions. Rather, the focus of this thesis will be on the broad category of "vulnerable" who are less easily defined and who are therefore inherently not included in planning efforts.

As currently understood by the emerging planning guidance literature, the individuals or groups that should be considered "at risk" to be vulnerable include the

economically disadvantaged, those without a social network, those needing support because of physical, mental, or medical conditions, and those who are not literate or not proficient in English.<sup>17</sup>

Some examples of persons who may be considered part of a vulnerable population include single persons with children, or other dependents, and who are managing to stay just above the poverty line and maintain their households while working multiple jobs. With the likelihood of suspended mass transit services, school and business closures, and the societal infrastructure that has enabled them to maintain self sufficiency may be suspended. The suspension of school lunch programs may leave children in those families, who depend on school lunches to help feed their children, subsisting in a state of hunger if provision for those meals is not otherwise accomplished. Persons with unaddressed physical ailments such as hypertension created by lifestyle or environmental factors may become special needs due to the stress and environmental changes caused by a pandemic. Non-English speakers, illegal immigrants, transient and homeless populations, and any others without effective social support networks or ties to agencies that could provide necessary services or assistance to them during events such as an influenza pandemic are also at risk of falling through the cracks in the planning process. During a pandemic these vulnerable groups will likely emerge and require a significant level of assistance.

Failure to plan for vulnerable populations that may not have met the restrictive criteria of special needs, or those who may have otherwise been overlooked during the planning process will likely result in the emergence of a large group of people who will require assistance of a special nature that may or may not be available. Defining and identifying these groups within communities, as well as engaging them and the agencies that may be able to assist them is essential to prevent unnecessary morbidity and mortality.

Media coverage of the Hurricane Katrina aftermath highlighted the plight of the citizens of New Orleans who required special assistance, including food, shelter, clothing

---

<sup>17</sup> ASTHO, “At Risk Populations and Influenza.”

and medication during the response to the disaster. Many of the people who needed assistance had not been identified as special needs prior to the hurricanes, but became part of the special needs population in the aftermath of Hurricanes Katrina and Rita. In retrospect, it is not difficult to guess that some of those people could have been described as vulnerable prior to the hurricanes. Their plight was a result of many factors including the population's pre-existing poor health status, poverty, etc. These experiences illustrate that while there may have been a lot done to address those people that meet the definition of special needs, such as those with certain medical conditions or mental and physical disabilities, there was still a large group of vulnerable citizens whose needs were not well-addressed. This is due partially to the variability of definitions of which characteristics make a group vulnerable as well as the uncertainty of how to best approach planning for them once they have been identified.

Looking back on Hurricane Katrina, it is becoming apparent that had there been adequate planning for this loosely termed group of vulnerable citizens it may have prevented many of them from becoming special needs as a result of the hurricane and its aftermath. Hurricane Katrina underscored the gaps in planning that exist for vulnerable populations. Since then, much time and effort has gone into discussing what happened, debating why it happened, and demanding that it never happen again. Many jurisdictions are trying to get their arms around how to prevent such a disaster from occurring again in the future. Assessing the plans at the local level may provide a perspective on the needs of ECs in terms of technical assistance to be offered by the state.

## **6. Assessing the Plans**

The ECs in Georgia have been tasked with coordinating community preparedness efforts for an influenza pandemic, but the focus of those efforts has been more concentrated on education, business, public safety organizations, and maintaining the continuity of services in each community. The purpose of this study is to prevent future failures in planning for vulnerable populations, which became so evident by the events following Hurricane Katrina, by assessing the extent of planning for vulnerable populations that has been undertaken in Georgia. An audit of pandemic planning efforts

to date at the state health district and county jurisdictional levels with special focus on issues related vulnerable populations in the hopes of identifying weaknesses in the planning process that, once corrected, could prevent another failure in response to the needs of these populations. The key questions to be evaluated are: First how well do the plans define and identify vulnerable segments of their communities? Secondly, how well does the current public health planning aid in fostering resilience in the populations that have been identified as vulnerable as measured by the extent to which local community partners and organizations, which have active stake in the community, were engaged during the planning process? Lastly, are there specific weaknesses that can be identified in the county plans for vulnerable populations across all the jurisdictions being assessed, or do the strengths and weaknesses related to planning for vulnerable populations vary substantially from jurisdiction to jurisdiction? In determining the answers to the aforementioned questions, public health and other agencies and organizations in Georgia, may improve their strategies for defining, identifying, and engaging the vulnerable populations and their supporting agencies and, thus, improve their planning for these populations prior to an influenza pandemic.



## **II. LITERATURE REVIEW**

The integration of planning efforts for the vulnerable populations with the wider efforts of planning with all sectors of the community has not been well-documented. There are a few articles describing the need to foster resilience in communities and individuals in an effort to prepare for public health emergencies such as pandemic influenza. Literature exploring the intersection of vulnerable populations, engaging partnering agencies, and planning for public health emergencies, such as pandemic influenza, is scarce at best.

The review of the current literature does not reflect how comprehensively public health planners have defined, identified, and addressed the needs of vulnerable populations through engaging the organizations and entities that serve them in preparation for pandemic influenza or other scenarios. Instead, there is much discussion that indicates an awakening to the importance of considering the potential needs of these people that have traditionally fallen through the gaps during planning. Much has been written post-Katrina to underscore the importance of taking steps to ensure this group is not forgotten again.

### **A. PREVENTING THE EMERGENCE OF ADDITIONAL SPECIAL NEEDS POPULATIONS DURING PUBLIC HEALTH EMERGENCIES**

Since the aftermath of Hurricane Katrina, there has been a movement within public health to identify vulnerable populations and their needs. There is not a lot of language in the existing literature that describes “protecting” vulnerable populations during a public health emergency. The Wingate et al article ventures closest to the topic. The focus of their article, “Identifying and Protecting Vulnerable Populations in Public Health Emergencies: Addressing Gaps in Education and Training,” is education and training resources that are available to help planners contend with vulnerable populations.

The authors noted that there is an absence of resources that realistically address policy and planning challenges in relation to that segment of the population.<sup>18</sup>

## **B. HOW ARE VULNERABLE SEGMENTS OF THE POPULATION DEFINED, IDENTIFIED AND ENGAGED?**

Hurricane Katrina underscored the need for planning guidance for public health practitioners at the state and local levels. Prior to this, few resources existed to aid public health officials in defining and identifying vulnerable populations in their communities, especially in the context of preparing for emergencies. To that end, the CDC has developed a draft workbook which is focused on vulnerable populations and how to define, reach, and locate them during an emergency. The workbook provides a practical framework for initiating the process of engaging vulnerable populations with the ultimate goal of being able to effectively communicate with them during an emergency. The premise is that by building a relationship with individuals and groups who are vulnerable or that have special needs prior to an emergency, public health officials will be able to provide them with important information and guidance during an event like pandemic influenza. By creating a working relationship, vulnerable populations will be more responsive to the messages and guidance offered by public health as well as more participatory in determining solutions for themselves.<sup>19</sup>

Issues that are addressed in defining vulnerable populations include poverty, race, class, language barriers, and gender. Authors such as Schoch- Spana, et al. propose multiple strategies to effectively collaborate with populations that are not traditionally responsive to overtures by government programs or officials. Her premise is that

---

<sup>18</sup> Martha Wingate, Emily Perry, Paul Campbell, Prabu David, Elizabeth Weist, "Identifying and Protecting Vulnerable Populations in Public Health Emergencies: Addressing Gaps in Education and Training," *Public Health Reports* 122 (May- June 2007): 422-426.

<sup>19</sup> Centers for Disease Control and Prevention, "Public Health Workbook to Define, Locate, and Reach special, Vulnerable, and At- Risk Populations in an Emergency" (draft, CDC, Atlanta, Georgia, 2007), [www.bt.cdc.gov/workbook](http://www.bt.cdc.gov/workbook) (accessed January 10, 2008).

engaging all members of the community from the early phases of planning for an emergency to the recovery from the emergency will be more effective than the traditional approach has been.<sup>20</sup>

In addition, including those that may be defined as vulnerable in the planning may result in improving the perceived acceptability of the plans that are adopted. The value of the community engagement approach, which is defined as a structured dialogue, joint problem-solving and collaborative action among authorities, citizens at large and local opinion leaders, is then examined as it relates specifically to pandemic influenza. The authors proposed that the communities' wealth of knowledge and experience should contribute to plans from the outset because governmental authorities do not have the resources nor imagination to address the many issues that must be considered in each community.<sup>21</sup> The process described by Schoch- Spana, et al. could be an effective methodology to foster "civic preparedness." The qualities that would be instilled in a community as a result could result in significantly increased resilience to prepare for and survive an emergency such as a pandemic influenza.

### **C. WHAT PLANNING PROVISIONS ARE REQUIRED FOR GROUPS OR INDIVIDUALS, PRIOR TO EVENTS OF PUBLIC HEALTH SIGNIFICANCE, TO ENSURE THEIR SURVIVAL AND RECOVERY?**

While there is a great deal of documentation regarding what went wrong and some hypotheses about why things happened the way they did in the aftermath of Katrina, there is no documentation of policies in place to prevent a similar situation in the future. The discussion of creating a "resilient" community or society is occurring; however, there is no mention of what to do in the event that vulnerable segments of communities are unable or unwilling to respond in such a way that will ensure their survival.

---

<sup>20</sup> Monica Schoch- Spana, Chrystal Franco, Jennifer Nuzzo, and Christiana Usenza, "Community Engagement: Leadership Tool for Catastrophic Health Events," *BioSecurity and BioTerrorism: BioDefense Strategy, Practice, and Science* 5, no. 1 (2007) 8-25.

<sup>21</sup> Schoch- Spana et al., "Community Engagement," 8-25.

In fact, creating “community resilience” is now an area of responsibility for public health according to the recently released Homeland Security Presidential Directive (HSPD) 21.<sup>22</sup> Relating back to the methods suggested by Scoch- Spana, et al. engaging all citizens and sectors in preparing for a pandemic could be a long term solution to engaging vulnerable populations at a community level. As the authors suggested, this would require a commitment at the national level to ensure financial and other support to state and local jurisdictions to carry these strategies forward.<sup>23</sup>

#### **D. PUBLIC HEALTH PREPAREDNESS AND THE ROLE OF INDIVIDUAL CITIZENS**

There are increasing federal requirements that define the evolving role of public health in preparing for all hazards or terrorist related events that impact health, as noted specifically in the *Pandemic and All Hazards Preparedness Act* <sup>24</sup> and *Homeland Security Presidential Directive 21*; <sup>25</sup> however, there is not a great deal of literature that specifically addresses how private citizens interact with public health and other agencies to improve their own level of preparedness along with that of their communities.

A recent commentary by Middaugh cautioned that placing too much emphasis on the choices of individuals in adopting self-isolation practices could lead to unintended, negative consequences for society. In his view, one of the most challenging aspects of coping with a public health emergency such as pandemic influenza is maintaining what he called “social cohesiveness.” The author contended that deemphasizing how individuals may or may not be at the root of their own trouble may be necessary to ensure that citizens pull together during a crisis.<sup>26</sup>

---

<sup>22</sup> White House, *Homeland Security Presidential Directive/ HSPD 21* (October 18, 2007) [www.whitehouse.gov/news/releases/2007/10/print/20071018-10.html](http://www.whitehouse.gov/news/releases/2007/10/print/20071018-10.html) (accessed November 2007).

<sup>23</sup> Schoch- Spana et al., “Community Engagement,” 8-25.

<sup>24</sup> Assistant Secretary for Preparedness and Response, “Pandemic and All Hazards Preparedness Act: Progress Report Public Law 109-417,” (Washington D.C.: Department of Health and Human Services, 2007).

<sup>25</sup> Whitehouse. *HSPD 21*.

<sup>26</sup> John Middaugh, “Pandemic Influenza Preparedness and Community Resiliency,” *Journal of the American Medical Association* 299, no. 5 (February 2008): 566- 567.

In contrast, in a commentary responding to traveler Andrew Speaker, Sibley wrote that society must be able to expect its members to forgo self-indulgent activities for the good of the community. He argued that people's individual freedoms, including the pursuit of individual happiness, are outweighed larger societal concerns. Sibley asserted that there must be an increased emphasis on personal responsibility among the population.<sup>27</sup>

Kindt argues that the government's current "We've got it covered" approach to the war in Iraq and war against terror does not empower individual citizens to take any ownership for preparing to deal with emergencies. His focus is upon acts of terrorism, but the discussion is applicable to how public health emergencies must be dealt with as well. Current messages from leadership at the national level have not done enough to encourage citizens to prepare at the individual household or at the community levels. His recommendations included engaging individuals and communities more broadly to increase resilience to emergencies.<sup>28</sup> His view complements the approach recommended by Schoch-Spana, et al.: that there should be a government sponsored process and policies that support and lead communities towards participating in planning for health emergencies for themselves as well as for and with their most vulnerable constituents.

#### **E. PUBLIC HEALTH PREPAREDNESS AND THE ROLE OF PUBLIC SAFETY AND OTHER GOVERNMENTAL AND NON GOVERNMENTAL ORGANIZATIONS**

Public health is often considered as the lead or coordinating agency in planning for response to public health emergencies such as pandemic influenza.<sup>29</sup> Clear documentation of the requirements of other public safety agencies and non- governmental organizations (NGO) is lacking, especially with regards to those at the state and local level. Many of the supportive services that vulnerable populations require are provided by agencies and volunteer organizations outside the direct purview of public health.

---

<sup>27</sup> Robert Sibley, "In Search of Trust," *Canadian Medical Association Journal* 177 no.11 (November 20, 2007): 1464.

<sup>28</sup> Michael Kindt, *Building Population Resilience to Terror Attacks: Unlearned Lessons from Military and Civilian Experience* (Maxwell AFB, Alabama: USAF Counterproliferation Center, 2006) 1-36.

<sup>29</sup> Assistant Secretary for Preparedness and Response. *Pandemic and All Hazards*.

These agencies and organizations may or may not respond to requests from the public health agencies to plan collaboratively for pandemic influenza.

With no clear delineation of responsibilities for planning for the support of vulnerable populations, it is unclear how these services, which are currently provided by government agencies and NGOs to vulnerable individuals and groups, will be rendered without dedicated attention in continuity of operations or contingency planning for an influenza pandemic,. Right now, the planning and preparation is an act of goodwill that these agencies are participating in planning initiatives led by public health rather than a stated expectation. Without clear policies addressing collaboration and coordination among the many governmental agencies and NGOs, the degree of partnership that exists among the disciplines varies significantly within and among the jurisdictions. In a public health emergency such as pandemic influenza, this disjointed approach may result in increased morbidity and mortality, particularly within the vulnerable communities in question.

#### **F. AFTER ACTION REPORTS AND IDENTIFIED VULNERABLE OR SPECIAL NEEDS POPULATIONS ISSUES**

Special considerations, including future planning issues facing vulnerable populations, were documented following the fourth of the federally designed and conducted Homeland Security exercises involving senior officials from local, state and federal agencies called TOPOFF 4.<sup>30</sup> Similar issues are found in the *Windstorm Response after Action Report* published by Grays Harbor County Public Health.<sup>31</sup> Both noted that more planning and coordination for these constituencies must occur for an effective emergency response. The TOPOFF 4 exercise After Action Report indicated that because of the scenario imposed by exercise, a tremendous amount of confusion ensued that

---

<sup>30</sup> New Jersey Institute Technology, "TOPOFF 4 Looking Glass Exercise after Action Report," New Jersey Business Force (November 21, 2007) <http://www.njbusinessforce.org/NJBFreports.htm>.

<sup>31</sup> Grays Harbor Public Health and Social Services Department and Environmental Health Division, "After Action Report Windstorm Response, December 2007: A Report to the Board of Health," (January 24, 2008) [http://www.ghphss.org/files/PDF%20Files/After%20Action%20Report%20Windstorm%20Dec%202007\\_1.pdf](http://www.ghphss.org/files/PDF%20Files/After%20Action%20Report%20Windstorm%20Dec%202007_1.pdf).

resulted in many vulnerable and special medical needs populations being left without the services they required. This finding could be foreshadowing of issues facing vulnerable populations during a large scale emergency in the absence of effective planning. According to documentation in the Windstorm After Action Report, produced following a real world event rather than an exercise, it appears that Public Health did a good job in determining who vulnerable populations were post event but it occurred spontaneously without significant pre-planning. More time and energy needs to be invested in the preparation for emergency events as well as devising strategies to reach out to various constituencies following an emergency event. In this instance there were no negative outcomes but there was and is definitely room for improvement.

## **1. Emerging Guidance**

The recently released *Planning Guidance for State, Territorial, Tribal and Local Health Departments* <sup>32</sup> provides a comprehensive framework of planning considerations with criteria for defining and identifying vulnerable populations. It offers strategies and templates of successful programs and projects that have been implemented locally to reach specific segments of vulnerable populations. It includes strategies to effectively communicate and educate these populations as a key element to their survival in and following influenza pandemic. There is also discussion of the essential medical and non-medical services for which public health is responsible. These services may be compared to the essential services identified by planners in Georgia. A key assumption of this guidance is that public health preparedness planners have their hands on these activities and that public health is a key driver behind them. Timelines are included to help public health planners gauge the focus of their activities based upon which World Health Organization PHASE, describing the severity and intensity of the avian influenza or pandemic outbreak is occurring.

There is also guidance addressing exercising within the Homeland Security Exercise and Evaluation Program (HSEEP) model to continually adapt and improve the plan for vulnerable, as well as other, populations. As with other literature, it is striking

---

<sup>32</sup> ASTHO, “At Risk Populations and Influenza.”

how inclusive the vulnerable and “at risk for becoming vulnerable” are. In essence, there is not any segment of society that is immune from vulnerability during pandemic. The challenge for state and local jurisdictions will be to prioritize which vulnerable populations must be addressed specifically in the plans and which “at risk to be vulnerable populations” should be targeted with general education or social marketing messages about how to prepare for an influenza pandemic.

It is timely that the planning guidance and awareness of special considerations that should be made for vulnerable populations are now being raised to the forefront for public health planners. Many of these themes were not well-articulated when the public health emergency coordinators in Georgia developed their health district and county plans for pandemic influenza. With the recent literature on the needs of vulnerable populations in mind, an assessment of what gaps that may exist in Georgia’s plans could assist in health district emergency coordinators and planners at the state in identifying how to better prepare vulnerable populations for pandemic influenza or other public health emergencies.



### **III. METHODOLOGY**

#### **A. BACKGROUND**

There are 159 counties in Georgia. Each of the eighteen health districts provides support to the counties in their jurisdictions. Money was allotted through the Pandemic All Hazards Preparedness Act to allow state and local jurisdictions to develop plans at the county level in order to prepare for and survive an influenza pandemic. In Georgia, health district emergency coordinators worked with county emergency management agencies and others to create multi-disciplinary preparation and response strategies.

#### **B. STUDY DESIGN**

This research will assess the extent to which the plans have defined, identified, and engaged agencies and organizations that serve vulnerable segments of their communities. A survey of vulnerable populations planning as reflected in county pandemic influenza plans will be administered to a simple random sample of Georgia 159 counties by using an electronic interface called State's Electronic Notifiable Disease Surveillance System (SendSS).

An electronic questionnaire was developed in a module of the State's Electronic Notifiable Disease Surveillance System (SendSS). Questionnaires or "surveys" as they are called in the SendSS, interface can be designed by individual users to collect information related to cases in an outbreak; for example, or in this instance, to collect and analyze data about county pandemic influenza plans. An analysis tool to assist epidemiologists in Georgia to calculate frequency is a part of the module used to construct the questionnaire. A survey was created that would determine if county pandemic plans being reviewed did or did not include language regarding defining and identifying vulnerable populations and other information that would indicate that provisions for vulnerable populations had been made at the counties that were included in the random sample.

## **1. Sample Size**

It was determined for a representative sample resulting 95 percent confidence intervals with a margin of error not greater than plus or minus 10 percent, 60 counties should be randomly selected to obtain representative results that were generalizable to all Georgia counties. A list of 60 counties was generated by SAS Survey select procedure, and of those selected, 41 (68 percent) had submitted a plan to the Division of Public Health. Nineteen (32 percent) did not submit a plan. For the purposes of this study, these nineteen counties will be treated as not having a plan, although in reality there may be a plan that simply was not submitted to the EC.

## **2. Survey Instrument**

The questions were designed to elicit either “yes” or “no” responses or to indicate by checking the box the presence or absence of specific language in the county plans. The survey questions and form in the SendSS interface were used to assess twenty plans that were readily available but not included in the list of randomly sampled counties. This provided an opportunity to adjust the survey questions to better capture information that were represented in the county plans and to simplify the classification of responses. The final survey contained 25 questions. A copy of the questionnaire is included in the appendix.

## **3. Data Collection**

Each plan was printed and read twice. Each of the plans were reviewed for specific words, including terminology or phrases such as “at risk”, “vulnerable”, “special needs”, etc. that were the basis of the individual survey questions. When plans did not reference key words, additional review of specific sections was conducted. During the review process, it became apparent that there were a finite number of templates that were used as the basis of planning for pandemic influenza by emergency coordinators. Extra attention was paid to those plans with nuances indicating they had been tailored to the specific needs of the vulnerable populations of the jurisdiction for which the planning was conducted. After the two reviews, responses to each question in the survey were

recorded in the SendSS web survey application. Finally, the questionnaire responses were double checked by the author to ensure that each question had been answered for each plan.

#### **4. Data Analysis**

The data collected from the plans were cleaned and analyzed using the My Surveys frequency analysis capability created in SendSS. Data frequencies were calculated based upon the presence or absence of each variable, such as terminology including at risk, vulnerable, special needs, etc. that were being assessed in the survey. The frequencies and percentages for each survey question were then exported to Excel for additional manipulation in order to create bar graphs to aid in discerning what generalizations could be made regarding the attributes of the county pandemic influenza plans.

THIS PAGE INTENTIONALLY LEFT BLANK

## IV. RESULTS

### A. RESULTS

The questions in the Pandemic Influenza Plan Audit Survey (“survey question[s]”) were designed to collect information that could help answer the research questions raised in Chapter I. A copy of the survey is available in Appendix 3. The survey questions that were numbered one through four elicited responses to indicate which county and health district jurisdiction was being reviewed. Survey question five ascertained whether the county selected submitted a plan or not. Of the sixty counties randomly selected for assessment, 68 percent provided a plan for review

#### 1. Survey Questions Six, Eight, and Nine

##### a. *Results Questions Six, Eight, and Nine*

Survey questions six, eight, and nine were meant to get to the heart of the first research question: *How well do the plans prepared by the public health emergency coordinators define and identify “vulnerable” segments of their communities?* Survey question six was, *“Does the plan addresses communication strategies for the following populations?”*

Survey question six was designed to determine how aware emergency coordinators are of the vulnerable populations in their jurisdictions and whether or not they had described plans to communicate either health education messages specifically for the vulnerable populations or if they had described risk communication strategies to address specific constituencies. The data summary below (Table 1) demonstrates that there is a general awareness among planners that there are people in the jurisdiction in question that require additional planning, whether health education, risk communication, or other activities. The terms used to describe vulnerable populations are used somewhat interchangeably in the jurisdictions with language regarding these populations.

<i>Does the plan addresses communication strategies for the following populations?</i>		
<b>Populations</b>	<b># Plans that referenced the population</b>	<b>% Plans that referenced the population</b>
Vulnerable Population	23	38.30%
Special or Special Needs	7	11.70%
Underserved	24	40%
Hard to Reach	2	3.30%
At Risk	1	1.70%
At least one of the Above	29	48.30%

Table 1. Strategies and Populations

Survey question eight was, “This plan defines the following populations” and was designed to determine whether public health emergency coordinators clearly defined or spelled out who or what was meant by a “vulnerable,” “special or special needs,” “underserved,” “hard to reach,” or “at risk” populations. The presence or absence of definitions was intended to elucidate whether planners had very specific populations and their specific needs in mind when writing their plans. There were no plans that clearly defined who were being included or excluded by the listed terms.

Survey question nine was, “This plan identifies the following populations.” It was meant to determine if planners were aware of the population demographics of their jurisdictions. For example, was there any documentation of where, geographically, specific segments of the population might be who are considered vulnerable, special or special needs, underserved, hard to reach, or at risk are located? There were no plans that described jurisdiction specific requirements or considerations of these populations.

Survey question seven, “Plan mentions needs assessment,” was included to determine whether planners intended to find out during or following pandemic influenza how the community at large was affected and what immediate health and medical needs of the population might be. A needs assessment could be conducted prior to an event to gain a better understanding of the jurisdiction in question and to enable planning. As it related to question nine, a needs assessment could be used to identify geographic areas where the population may be vulnerable; for example, because they are living in poverty. In addition, facilities that serve specific populations could be

documented for pre-event planning purposes. Post event, a needs assessment is meant to respond to issues that have arisen as a result of an event. 31.7 percent of plans included language that a needs assessment would be conducted following the initial wave of pandemic influenza.

***b. Interpretation Survey Questions Six, Eight, and Nine***

The results of questions six through nine provided evidence that while there is awareness that there are subsets of the population that may require additional assistance either in health education or risk communication, they are not well understood. The county plans, for the most part, were composed in 2006 and 2007; the increasing emphasis and awareness of “vulnerable” populations began to gain momentum in 2007 and 2008. There was no guidance or mandate to articulate plans for these groups until 2008; therefore, it is not surprising that, though mentioned, vulnerable populations and their needs are not addressed in a comprehensive manner. With the emergence of guidance and an increasing expectation that vulnerable populations must be contended with in planning for and responding to emergency events, these results underscore the need to define and identify in a much more specific manner who these individuals and groups are during the planning process.

***c. Implications Survey Questions Six, Eight, and Nine***

Guidance with respect to planning for vulnerable populations that has been provided by federal and state public health agencies to local public health planners has been minimal at best. Without the provision of specific definitions of vulnerable populations, there is a significant chance that many individuals and groups that will need assistance during and following an emergency such as an influenza pandemic will go without.

## **2. Survey Questions Ten to Fifteen**

### ***a. Results Survey Questions Ten to Fifteen***

Survey questions ten to fifteen\_were designed to address the second research question, *How well does current public health planning aid in fostering resilience in populations that have been identified as vulnerable as measured by the extent to which local community partners and organizations that have active stake in the community were engaged during the planning process?* (See Tables 2-4 below) Question ten, “the plan identified agency responsibilities for supporting the following populations: vulnerable, special or special needs, underserved, hard to reach, at risk.” Question eleven, “Participation by governmental agencies supporting mental health services is specifically documented in the plan?” Question twelve, was “Participation by governmental agencies supporting aging services is specifically documented in the plan?” Question thirteen was “Participation by governmental agencies supporting family and children’s services is specifically documented in the plan?” Question fourteen, “This plan mentions the following partner agencies: business sector, school sector, community based organization (CBO) sector, non-governmental organization (NGO) sector, faith based organization (FBO) sector.” Finally question fifteen, “This plan mentions points of contact for the following: business sector, school sector, CBO sector, NGO sector, FBO sector.” The questions were intended to include governmental and community agencies that are responsible for interacting with “vulnerable” constituencies. Their presence or absence in the planning process, as documented, may reveal the extent to which issues related to vulnerable populations have been well-thought out and addressed.

Survey question ten was designed to determine if specific agencies that are responsible for supporting vulnerable, special or special needs, underserved, hard to reach, or at risk populations were documented in the county pandemic influenza plan. Only 3.3 percent of plans indicated that a specific agency was responsible to a specific population.



The Georgia Division of Public Health is a partner division of the Divisions of Mental Health, Aging and the Division of Family and Children's Services in the Department of Human Resources. Each of the divisions has a presence at the health district and county level. Questions eleven, twelve, and thirteen were designed to determine the extent to which public health agency included its sister agencies to learn how the sister agencies are able to support vulnerable populations during and following pandemic influenza.

<i>Participation by governmental agencies supporting mental health services is specifically documented in the plan?</i>		
<b>Response</b>	<b># of plans with response</b>	<b>% of plans with response</b>
YES	8	13.30%
NO	31	51.70%

Table 2. Supporting Mental Health Services

<i>Participation by governmental agencies supporting aging services is specifically documented in the plan?</i>		
<b>Response</b>	<b># of plans with response</b>	<b>% of plans with response</b>
YES	0	0%
NO	39	65.0%

Table 3. Supporting Aging Services

<i>Participation by governmental agencies supporting family and children's services is specifically documented in the plan</i>		
<b>Response</b>	<b># of plans with response</b>	<b>% of plans with response</b>
YES	5	8.30%
NO	34	56.70%

Table 4. Supporting Family and Children's Services

Survey question fourteen was intended to capture the extent to which planners had been inclusive of agencies and organizations in the community that have a stake in the survival of the community at large and that may also serve vulnerable populations (see Table 5). 63.3 percent of the county pandemic influenza plans mentioned some or all of the following: business sector, school sector, CBO, NGO, FBO as either included in the planning process or described as "will be included in the

planning process in the future.” Plans that were available for review indicated that outside organizations and agencies were or should be engaged in the pandemic influenza planning process.

<i>This plan mentions the following partner agencies:</i>		
<b>Agency</b>	<b># of plans mentioning agency</b>	<b>% of plans mentioning agency</b>
Business Sector	37	61.70%
School Sector	37	61.70%
CBO Sector	34	56.70%
NGO Sector	4	6.70%
FBO Sector	25	41.70%

Table 5. Partner Agencies

Survey question fifteen was intended to describe the extent to which agencies and organizations had been actively, rather than notionally, involved in pandemic planning. NGOs are noticeably less described in the plans (see Table 6). Far fewer organizations or agencies and points of contact were documented as active participants in the pandemic influenza planning process.

<i>This plan mentions/lists points of contact for the following:</i>		
<b>Agency</b>	<b># of plans mentioning points of contact</b>	<b>% of plans mentioning points of contact</b>
Business Sector	9	15%
School Sector	9	15%
CBO Sector	9	15%
NGO Sector	2	3.30%
FBO Sector	7	11.70%

Table 6. Points of Contact

***b. Interpretation of Survey Questions Ten to Fifteen***

The results of survey questions ten through fifteen indicated that there is awareness that planning for pandemic influenza must not occur in a vacuum. Other sectors, primarily schools, businesses, community and faith based organizations, are named as essential partners in many of the plans. There is a noticeable absence of mention of the non-governmental agencies (i.e. Red Cross) in the plans as well as an

apparent lack of consideration in most plans of the public health's partner agencies, including the Division of Family and Children's Services, the Division of Aging, and the Division of Mental Health, Developmental Disabilities, and Addictive Diseases.

***c. Implications of Questions Ten through Fifteen***

The fact that partner agencies are mentioned, if only by category, is significant as it indicates an awareness that the planning for pandemic influenza as well as other emergencies cannot occur in isolation. However, the lack of documentation in most plans of actual agencies and individuals engaged in the planning process is of concern for several reasons, including that to ensure continuity, names must be named so that if new people are engaged during or after an emergency event there will be an ability to pick up the plan and fulfill the intent of the plan. For the purposes of planning for vulnerable populations, engaging specific governmental, community based organizations, faith based organizations, schools and non governmental organizations this is essential because, in many cases, these entities provide services or interact with vulnerable populations and are essential in preparing vulnerable populations for pandemic influenza as well as responding to their needs once it has begun. The fact that essential collaboration not well documented among stakeholders is suggestive that much work needs to be done in solidifying the plans as they relate to the general population as well as those that are "vulnerable."

**3. Survey Questions Sixteen through Twenty-Five**

***a. Results Survey Questions Sixteen through Twenty-Five***

The remaining survey questions, sixteen through twenty-five were designed to provide a context for the final research question. Are there specific weaknesses that can be identified in the county plans for vulnerable populations across all the jurisdictions being assessed, or do the strengths and weaknesses related to planning for vulnerable populations vary *substantially* from jurisdiction to jurisdiction?

Survey question sixteen was designed to determine the perceptions of planners as far as who the vulnerable populations in their jurisdictions might include. While the categories of potentially “vulnerable populations” are virtually endless, the groups most frequently identified specifically in the plans as requiring special health education or risk communication efforts were the homeless, linguistically isolated, and childcare centers. This may reflect that the perceptions of planners may not be linked to data from needs assessment (survey question seven) that explicitly identifies and locates “vulnerable” populations in a given community (see Figure 3 below).

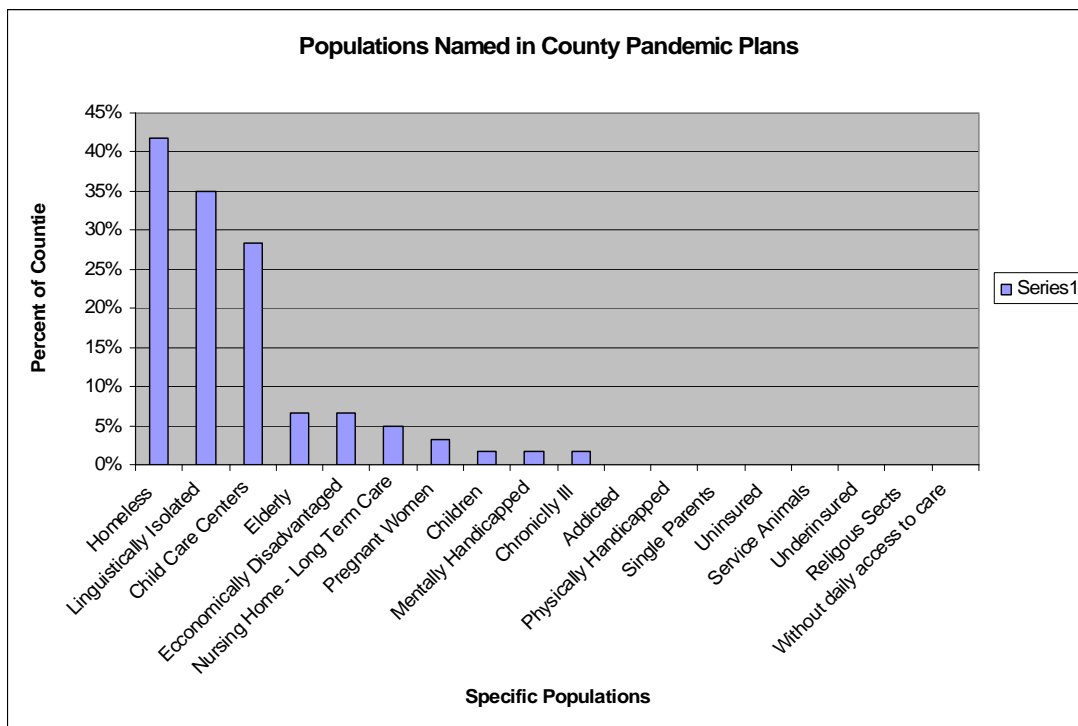


Figure 3. Populations Named in County Pandemic Plans

Survey questions seventeen through twenty-four were designed to determine the extent to which plans identified the roles and responsibilities of public health disciplines that should be represented in planning and response efforts (see Tables 7-12 below). In addition, they were to determine whether or not critical activities were documented as well as who was responsible for them was documented.

<i>Are shelter support requirements clearly assigned to a lead agency?</i>		
<b>Response</b>	<b># of plans with response</b>	<b>% of plans with response</b>
YES	2	3.30%
NO	38	63.30%

Table 7. Shelter Support Requirements

<i>Is environmental health support identified/ assigned?</i>		
<b>Response</b>	<b># of plans with response</b>	<b>% of plans with response</b>
YES	21	35%
NO	20	33.30%

Table 8. Environmental Health Support

<i>Is nursing support identified/ assigned?</i>		
<b>Response</b>	<b># of plans with response</b>	<b>% of plans with response</b>
YES	26	43.30%
NO	15	25%

Table 9. Nursing Support

<i>Is pharmaceutical support identified/ assigned?</i>		
<b>Response</b>	<b># of plans with response</b>	<b>% of plans with response</b>
YES	37	61.70%
NO	4	6.70%

Table 10. Pharmaceutical Support

<i>Is maintaining essential services mentioned?</i>		
<b>Response</b>	<b># of plans with response</b>	<b>% of plans with response</b>
YES	38	63.30%
NO	2	3.30%

Table 11. Maintaining Essential Services

<i>Is the incident management system to be used during the response clearly identified?</i>		
<b>Response</b>	<b># of plans with response</b>	<b>% of plans with response</b>
YES	36	60%
NO	5	8.30%

Table 12. Incident Management System Identified

Survey question twenty-four was intended to identify the extent that counties had involved volunteers in their planning for pandemic influenza (see Table 13). The plans do not indicate that these community resources have been included in the process of planning for an influenza pandemic.

<i>This plan addresses the following:</i>		
<b>Response</b>	<b># of plans with response</b>	<b>% of plans with response</b>
CERTS	1	1.70%
MRCs	6	10%

Table 13. Addressing CERTs and MRCs

***b. Interpretation Survey Questions Sixteen through Twenty-five***

The results of survey questions sixteen through twenty-five indicated that while almost all planners documented that their agency would operate under Incident Command System (ICS) and be National Incident Management System (NIMS) compliant, Although the general roles and responsibilities were documented in the plans, there was a universal absence of clear documentation regarding roles and responsibilities, by agency, to address the needs of vulnerable populations in their respective jurisdictions. The absence of a definition of vulnerable populations and identification of the specific individuals and groups that might require additional assistance was not addressed in any plan in more than general terms. In addition, many of the plans were based upon circulated templates in which the names of the jurisdiction were inserted. Similarly, the vulnerable populations were described and addressed in exactly the same fashion whether urban or rural counties.

***c. Implications Survey Questions Sixteen through Twenty-Five***

In the absence of specific guidance from federal or state public health entities, planning for vulnerable populations is not likely to occur in a systematic and comprehensive manner. The lack of definition of “vulnerable” population, the lack of identification of who and where the individuals and groups are within each county decreases the likelihood of planning effectively for them. The county plans reflect that at

the time they were written, planning across the board was very general and very high level. In order to address the needs of vulnerable populations and during and following an event such as pandemic influenza, it is essential that agencies and organizations that routinely interact with them are involved in planning efforts prior to the event. While it is encouraging that many plans mentioned these populations in a general way, in order to avoid another Hurricane Katrina like response, more must be done to ensure that sufficient planning occurs for vulnerable populations.

THIS PAGE INTENTIONALLY LEFT BLANK



## **V. RECOMMENDATIONS AND CONCLUSIONS**

### **A. THE PREPARATION FOR RESPONSE IS NOT COMPLETE**

As a result of this research, it became evident that, based upon the state and local plans in place, Georgia has not yet completed adequate planning for its vulnerable populations. The absence of specific language addressing vulnerable populations is due, in part, to a lack of emphasis on planning for these groups at the time the pandemic influenza plans were written in 2006 and 2007. The plan audit underscored, when the plans were written, that there was no common understanding among planners in Georgia of who vulnerable populations are, and there seems to have been only a vague awareness of populations that might require special health education or risk communication efforts during an emergency response. The terms used by planners to describe their counties' vulnerable populations were used indiscriminately and interchangeably, for example, special needs, at risk and, or vulnerable populations, with no differentiation between constituencies. In addition, jurisdictions universally spoke of these populations in abstract terms only, without identifying or documenting the particular characteristics and needs of individuals or groups living in their communities. Similarly, the Georgia Division of Public Health, at the state level, had no plan for addressing vulnerable populations either, nor had it considered how it could support local planners in defining and identifying these groups within the communities they were planning for. Additionally, the Division failed to consider what other recommendations should be made to assist local jurisdictions in planning for the vulnerable segment of their communities.

### **B. WHY IT IS HARD TO PLAN**

It is not surprising that the state and local jurisdictions in Georgia had not planned adequately for vulnerable populations- this need has only risen to the forefront of attention because of the failure of state and local authorities to respond effectively post Hurricane Katrina. While state and local officials had begun to consider what they

should do to avert another failure in response to the needs of the vulnerable again, federal authorities mandated states to document how they intended to address vulnerable populations in their 2008-09 pandemic plans, for the first time. The federal authorities may have been more motivated to push the mandates for states to plan for vulnerable populations because they were also widely perceived as responding ineffectively and inadequately following Hurricane Katrina.<sup>33</sup>

Historically, the problem with planning for vulnerable populations is that they are inherently difficult to define and characterize. This stems from the fact that many of them are managing to function fairly well in society, in the absence of upheaval caused by emergency situations such as an influenza pandemic. Preliminary guidance has emerged, but even agreeing on the definition of “vulnerable population” is controversial. For example, this group may include those living in poverty, non- English speakers, children and the elderly, those with chronic diseases requiring medication, etc, but that is by no means an exhaustive list. There are differences in populations between jurisdictions that necessitate a methodology for determining who is vulnerable at the community level.

Adopting a methodology such as a community needs assessment to characterize the population is of paramount importance if plans are going to address the real needs of the community. Currently in Georgia, the identity and location of those persons with special medical needs are actively sought by planners who recognize the importance of ensuring that adequate provisions are made for their well being. In the same way, with assistance from the state local planners should be able to identify the vulnerable populations in their jurisdictions.

Resources continue to be a challenge for public health and other agencies and organizations. Financially, times are tough and many organizations are struggling to meet the requirements of agency mandates. The scarcity of resources during these difficult times underscores the importance of collaboration with community stakeholders such as schools, non governmental organizations, faith based, business and other sectors that also

---

<sup>33</sup> Jim Lehrer, “Public Opinion After Katrina,” *One Line Newshour*, Public Broadcasting Service (September 9, 2005) [http://www.pbs.org/newshour/bb/politics/july-dec05/opinion\\_9-09.html](http://www.pbs.org/newshour/bb/politics/july-dec05/opinion_9-09.html), (accessed November 25, 2008).

must consider how to plan and respond to the needs of vulnerable populations. Many of Georgia's county pandemic influenza plans reflect an understanding that multi- sector, multi- disciplinary partners must be engaged in the planning process, but few contain language that indicates the degree that agencies and organizations are engaged. It may be that there is more collaboration than is evident in the plans, but in the absence of evidence, such as names and contact numbers of the individuals representing partner agencies and organizations, the importance of community stakeholder engagement must be re-emphasized.

### **C. THINGS THAT CAN BE DONE**

To plan effectively for vulnerable populations, either federal public health authorities or each state individually, should consider providing a working definition of vulnerable populations to the emergency coordinators responsible for developing a course of action that accounts for the needs of those who are considered at risk for becoming one of the vulnerable populations in the context of pandemic influenza or other emergencies. In addition, federal and state public health authorities should devise strategies and develop guidance to assist local jurisdictions in identifying vulnerable members of their communities that may be considered vulnerable or are potentially vulnerable to ensure adequate planning is done and to guard against repeating the failures that occurred in the aftermath of Hurricane Katrina.

### **D. WHAT GEORGIA IS DOING**

In direct response to this research, the Georgia Division of Public Health has created a working group devoted to addressing planning needs for vulnerable populations. The group has convened monthly since the spring of 2008 for the purpose of considering what planning efforts should occur at the state level as well as consider how the state public health and other agencies can support local public health jurisdictions in planning. The "Vulnerable Populations Working Group" determined that a working definition of someone who may be considered vulnerable or at risk for becoming vulnerable includes anyone that might be functioning independently under

normal circumstances but who will be unlikely to do so during an influenza pandemic or other emergency. For example, those living in poverty, non- English speakers, children and the elderly, those with chronic diseases requiring medication, etc. may be functioning under normal circumstances but may not have contingency plans for extreme circumstances. In addition, agencies that routinely support those individuals, such as schools providing lunches for low-income children may not have developed contingency plans to provide food for those children during an emergency, such as pandemic influenza. In order to address the apparent need to identify, locally, those that are likely to fall into the vulnerable category, the working group has documented its intention to provide the technical support to local public health jurisdictions to successfully characterize, on a population level, who/what and where a given jurisdiction's vulnerable population is likely to be.

A standard operating guide or SOG (see Appendix III) was developed as the first product of the working group. In it the group's intentions to define vulnerable populations was articulated, as well as their intention to conduct a health district by health district needs assessment for each population and to assist in local planning efforts. Since the SOG was developed the working group shifted its focus to assessing what capabilities and responsibilities other agencies and organizations at the state level for vulnerable populations. A survey that will help agencies and organizations identify their core mission and function as well as the continuity of operations plan will be devised, administered, and analyzed to ensure that all agencies and organizations are included in planning for vulnerable populations.

Finally, in order to focus the efforts of the working group, logic modeling was conducted to assist in "Describ[ing] how [the group] should work, [including] the planned activities for the program, and... on anticipated outcomes."<sup>34</sup> This logic model will continue to be revisited periodically to ensure that it is current with the dynamics of

---

<sup>34</sup> Bureau of Justice Assistance, "Logic Model," Center for Program Evaluation, [http://www.ojp.usdoj.gov/BJA/evaluation/glossary/glossary\\_1.htm](http://www.ojp.usdoj.gov/BJA/evaluation/glossary/glossary_1.htm) (accessed November 24, 2008).

changing populations.<sup>35</sup> After the initial phase of the working group's development of the public health SOG on vulnerable populations, an initiative to identify stakeholder agencies and organizations from state level governmental and non-governmental agencies will be undertaken to pull together create a core group dedicated to working on planning for vulnerable populations in an all hazards context. The working group has decided that to avoid planning fatigue caused by exclusive emphasis on one scenario; this would increase the sustainability of the multi-agency and multi- disciplinary planning efforts of all of the participants. The strategic planning activities of the public health working group will be revisited periodically, as will those of the larger multi-agency, multi-disciplinary group.

In addition to defining and identifying vulnerable populations early in the planning process, it is essential for public health emergency coordinators who are responsible for planning to involve agencies and organizations that also have an interest in serving or providing for these constituencies. Coordinating with these agencies and organizations while planning for an influenza pandemic will improve the likelihood of an effective, multi-agency response. Another benefit of collaborative planning may be that organizations and agencies external to public health will begin or continue their own planning for pandemic, including how they will continue to provide services to existing populations, keeping in mind that the possibility that the demand for their services will increase.

Although the Vulnerable Populations Working Group in Georgia was initially comprised of subject matter experts from public health disciplines including: environmental epidemiology, nursing, preparedness, trauma and EMS, syndromic surveillance epidemiology and infection control. Its efforts to engage partner organizations and agencies for pandemic influenza planning at the state level included representatives with response responsibilities for vulnerable populations or those working on vulnerable population's projects, including the Georgia Emergency Management Agency (GEMA), Emory University's Department of Health Policy and Management,

---

<sup>35</sup> Innovation Network, "Logic Model Workbook, Appendix A, 2005," (Washington D.C.: Innovation Network, 2006).

and the CDC. Additional stakeholders will be included in subsequent sessions. Once stakeholders are identified, facilitating communication and information sharing between agencies and organizations that serve vulnerable populations is a primary objective of the group at large with the hope that planning will be more efficient and response will be more effective.

## **E. CONCLUSIONS**

This study indicated a need for additional research in defining and identifying vulnerable populations as well as the development of tools and strategies for state and local jurisdictions to develop effective plans for these constituencies. At this time there is a much heightened awareness of the need to address planning for vulnerable populations. The survey tool created in SendSS could provide a useful format for emergency coordinators to self-assess their plans as they are updated. In addition, the survey could be updated to reflect planning needs from an all hazards perspective that may ensure that appropriate consideration is given to these populations.

The approach that has been developed by Georgia's Vulnerable Populations Working Group is an example of a starting point to addressing the needs of vulnerable populations. The progress made is only the beginning. Although there is an increasing awareness that planning for vulnerable populations is a priority, at this juncture the challenge is to engage those agencies and organizations that provide services to them on a regular basis. Public health is the appropriate lead agency when considering an influenza pandemic, but other agencies, such as GEMA, will be the lead in other scenarios. Convening stakeholders responsible for planning with the notion that many planning considerations can be generalized may enable more effective, all hazards preparedness for these populations.

Planners at the health district and county level may have an understanding that there are vulnerable populations in their jurisdictions, but defining who and where they are has not been accomplished as of yet. Local planners may need assistance from state public health in community needs assessments. States should be prepared to work with federal subject matter experts in creating appropriate definitions of vulnerable

populations as well as in determining effective methods for identifying them locally. Georgia has taken preliminary steps in planning how to support planners locally in identifying vulnerable populations, but has not yet made these plans operational. Preventing another response like that following Hurricane Katrina necessitates action; experience has proven that the needs of the vulnerable will not take care of themselves without assistance. A thoughtful, comprehensive strategy must be developed by state and local jurisdictions to plan for and protect their citizens.

In planning for pandemic influenza, only a well coordinated, multi- discipline, multi-sector effort will ensure the well-being and survival of the community. In planning for the community's survival, there must be additional considerations given to segments of communities that are "vulnerable" and may identify and address those needs should be considered prior to the influenza pandemic. Effectively defining, identifying, and engaging "vulnerable" sectors of the community is essential to planning and coordinating response activities to ensure the likelihood that they will survive and recover from emergencies such as an influenza pandemic.

THIS PAGE INTENTIONALLY LEFT BLANK



## APPENDIX I. LEVEL OF CARE DEFINITIONS

### GEORGIA DEPARTMENT OF HUMAN RESOURCES LEVELS OF CARE DEFINITIONS FOR DETERMINING DISASTER SHELTER PLACEMENT

Level	Description	Examples	Assignment
<b>1</b>	Persons who are independent and capable of self-care requiring only minimal support for minor illnesses and injuries.	Well, able-bodied; sprains, strains, cuts, abrasions; colds; taking medication for stable acute or chronic conditions such as arthritis; pregnant women up to 40+ weeks who have no complications.	Congregate shelter
<b>2</b>	Persons with conditions requiring observation or minor supportive assistance in activities of daily living. Independent with some family/caretaker support.	Requires use of wheelchair or assistive device, but can transfer; stable diabetics (insulin or diet controlled); currently stable, but on medication for stable cardiac or respiratory conditions; impaired hearing or vision; mental health disorders; hypertension; renal problems.	Congregate shelter
<b>3</b>	Persons with conditions requiring some level of privacy or separation but do not require skilled or continuous health care support from facility staff.	Communicable diseases like chicken pox or roseola; persons on chemotherapy or radiation; people with drug controlled TB; those with moderate Alzheimer's or dementia; those requiring assistance from family member/ caretaker in activities of daily living and have that person with them; those with portable O2 in use; kidney dialysis patients.	Congregate shelter if adequate staff and privacy present (separate room or wing in shelter). If not present, designated care facility
<b>4</b>	Persons requiring frequent or continuous surveillance for potentially life-threatening conditions or require bedding or bathroom facilities not available in the shelter.	Incontinent persons or those requiring assistance with toileting; those with limited mobility who cannot sleep on a cot or transfer; brittle diabetics or epileptics; oxygen dependent persons; those with severe dementia or psychiatric conditions; women with complicated pregnancies.	Designated care facility for supportive care
<b>5</b>	Persons requiring skilled care, continuous observation, or special equipment and services	Those needing IV feeding or medication; completely bedfast requiring total care, uncontrolled chronic or acute physical or mental	Emergency room, hospital or designated care facility of a

Level	Description	Examples	Assignment
	usually found in a hospital.	conditions; women in active labor; those with significant injuries, difficulty breathing, or prolonged pain.	hospital where swift transfer can occur if needed

Approved 12/18/98 - State Disaster Health Services Committee - (an American Red Cross and Public Health Partnership)

## APPENDIX II. SURVEY TOOL

### Pandemic Influenza Response Plan Audit

Plan Audit	
1 . Name of Plan:	
2 . County Jurisdiction	Choose One <input type="button" value="v"/>
3 . District Jurisdiction	Choose One <input type="button" value="v"/>
4 . State Jurisdiction	Choose One <input type="button" value="v"/>
5 . Did the county submit a Plan?	<input type="radio"/> Yes <input type="radio"/> No
6 . This plan addresses communication strategies for the following populations:	
Vulnerable Population	<input type="checkbox"/>
Special Or Special Needs	<input type="checkbox"/>
Underserved	<input type="checkbox"/>
Hard To Reach	<input type="checkbox"/>
At Risk	<input type="checkbox"/>
7 . Plan mentions Needs Assessment	<input type="radio"/> Yes <input type="radio"/> No
8 . This plan defines the following populations:	
Vulnerable	<input type="checkbox"/>
Special Or Special Needs	<input type="checkbox"/>
Underserved	<input type="checkbox"/>
Hard To Reach	<input type="checkbox"/>
At Risk	<input type="checkbox"/>
9 . This plan identifies the following populations:	
Vulnerable	<input type="checkbox"/>
Special Or Special Needs	<input type="checkbox"/>
Underserved	<input type="checkbox"/>
Hard To Reach	<input type="checkbox"/>
At Risk	<input type="checkbox"/>
10 . This plan identified agency responsibilities for supporting the following populations:	
Vulnerable	<input type="checkbox"/>
Special Or Special Needs	<input type="checkbox"/>
Underserved	<input type="checkbox"/>
Hard To Reach	<input type="checkbox"/>
At Risk	<input type="checkbox"/>
11 . Participation by governmental agencies supporting mental health services is specifically documented in the plan?	
	<input type="radio"/> Yes <input type="radio"/> No
12 . Participation by governmental agencies supporting aging services is specifically documented in the plan?	
	<input type="radio"/> Yes <input type="radio"/> No
13 . Participation by governmental agencies supporting family and children's services is specifically documented in the plan	
	<input type="radio"/> Yes <input type="radio"/> No
14 . This plan mentions the following partner agencies:	
Business Sector	<input type="checkbox"/>
School Sector	<input type="checkbox"/>
Cbo Sector	<input type="checkbox"/>
Ngo Sector	<input type="checkbox"/>
Fbo Sector	<input type="checkbox"/>

15 . This plan mentions/lists points of contact for the following:

Business Sector	<input type="checkbox"/>
School Sector	<input type="checkbox"/>
Cbo Sector	<input type="checkbox"/>
Ngo Sector	<input type="checkbox"/>
Fbo Sector	<input type="checkbox"/>

16 . This plan mentions the following populations:

Homeless	<input type="checkbox"/>
Pregnant Women	<input type="checkbox"/>
Children	<input type="checkbox"/>
Child Care Centers	<input type="checkbox"/>
Elderly	<input type="checkbox"/>
Economically Disadvantaged	<input type="checkbox"/>
Linguistically Isolated	<input type="checkbox"/>
Mentally Handicapped	<input type="checkbox"/>
Addicted	<input type="checkbox"/>
Physically Handicapped	<input type="checkbox"/>
Chronically Ill	<input type="checkbox"/>
Nursing Home - Long Term Care	<input type="checkbox"/>
Single Parents	<input type="checkbox"/>
Uninsured	<input type="checkbox"/>
Service Animals	<input type="checkbox"/>
Underinsured	<input type="checkbox"/>
Religious Sects	<input type="checkbox"/>
Without Daily Access To Care	<input type="checkbox"/>

17 . Are shelter support requirements clearly identified? ☐ Yes ☐ No

18 . Are shelter support requirements clearly assigned to a lead agency ? ☐ Yes ☐ No

19 . Is environmental health support identified/assigned? ☐ Yes ☐ No

20 . Is nursing support identified/assigned? ☐ Yes ☐ No

21 . Is pharmaceutical support identified/assigned? ☐ Yes ☐ No

22 . Is maintaining essential services mentioned? ☐ Yes ☐ No

23 . Is the incident management system to be used during the response clearly identified? ☐ Yes ☐ No

24 . This plan addresses the following:

Certs	<input type="checkbox"/>
Mrcs	<input type="checkbox"/>

25 . Comments:

Save

## **APPENDIX III. STANDARD OPERATING GUIDE (DRAFT)**



**Georgia Department of  
Human Resources**  
Division of Public Health



**Georgia Department of Human Resources  
Division of Public Health  
Emergency Operations Plan:**

**Assisting Vulnerable Populations  
Standard Operating Guide (SOG)\*  
Incident Annex 7 B  
9 July 2008**

*\* Note: This SOG is separate from the Georgia Department of Human Resources Guidelines for the Care of Populations with Special Needs During Disasters and Emergencies (2006).*

### **TABLE OF CONTENTS**

- I. Purpose**
- II. Situation**
- III. Assumptions**
- IV. Concept of Operations**
  - Phase I: Preparation and Prevention**
  - Phase II: Detection and Response**
  - Phase III: Recovery and Mitigation**
- V. Activities**
- VI. Roles and Responsibilities**
- VII. Administration and Logistics**
- VIII. Plan Development and Maintenance**
- IX. Authorities and References**
- X. Appendices**
- XI. Acronyms.**

## I. PURPOSE

This Standard Operating Guide(SOG) provides guidance for planning, preparing and coordinating assistance of vulnerable populations during all-hazard emergencies at the state and local levels. This SOG provides a proposed plan for the Georgia Division of Public Health(DPH) , Public Health District Directors and local Directors of Public Health on identifying and engaging government and private sector entities, community based organizations and other support agencies in developing local and district emergency plans for vulnerable populations within their jurisdictions.

This annex addresses planning for **vulnerable populations**. Defining and identifying these groups within communities, as well as engaging them, and the agencies that may assist them, is essential in preventing unnecessary morbidity and mortality.

## II. SITUATION

Public health and other agencies that respond to disasters should address the needs of the state's vulnerable populations in the planning process. The Georgia the Department of Human Resources (DHR), as the lead agency for sections 6 and 8 of the U.S. Government Emergency Support Functions (ESF-6 and ESF-8), addresses health and medical functions within the cycle of prevention, preparation, response and recovery. Within DHR, DPH is responsible for identifying vulnerable populations, determining their potential needs during a disaster, and coordinating with other agencies and organizations to ensure that they are cared for should an event of public health significance occur.

During a disaster, everyone in the population is vulnerable. Persons with special needs and special medical needs, such as dialysis patients and nursing home residents, require specific response planning to address their particular needs. However, there are others in the general population who on a day to day basis are independent of special care, but during a disaster are more vulnerable than the general population. During a disaster, these individuals or groups who are considered include persons who are economically disadvantaged, those without a social network, those needing support because of physical, mental, or chronic medical conditions, and those who are not literate or not proficient in English.(1) Understanding how different groups or segments of the community are "vulnerable" and identifying their needs during a disaster will require planning by public health and other agencies that are engaged in response activities.

Although there is no current official federal guidance or planning requirement for state, health district or county public health planners that definitively identifies 'vulnerable' populations. disaster response plans should include the needs and characteristics of these populations. When assessing the needs and characteristics of their particular communities, planners must consider individuals and groups that may not need special assistance now, but who will be 'vulnerable' during and following a disaster This subset of the general population will need varying levels of assistance. The assistance may differ in type and amount from that which is required by the "special needs" and the "special medical needs populations." Failure to plan for vulnerable populations or for

those who may have otherwise been overlooked during the emergency planning process, will likely result in the unexpected emergence of a large group of people requiring assistance of a special nature that may or may not be available within the planning jurisdictions.

Thus, the focus of this SOG will be on this subset of the general population and will be heretofore be referred to as the “**vulnerable population.**” This annex addresses planning, preparing, and coordinating for vulnerable populations for response to all hazards.

### **III. ASSUMPTIONS**

- A significant segment of the community that does not currently meet the definition of “special needs” and “special medical needs” will require assistance during a disaster. This segment of the population may not be identified as vulnerable until a disaster occurs.
- Understanding how different groups or segments of the community are “vulnerable” and identifying their needs during a disaster will require planning on the part of public health and other disaster management agencies that are engaged in response activities.
- Community engagement in planning activities will serve as a pivotal focus of resources to reach wider audiences of “vulnerable populations.” This empowers communities and individuals to create resiliency and survival strategies.

### **IV. CONCEPT OF OPERATIONS**

The overall concept of operations is to define, identify and coordinate the assistance of vulnerable populations during an emergency occur in the phases according to the cycle of preparedness.

**This SOG supports the Public Health EOP’s 3 phases of emergency management:**

**Phase I: Preparedness and Prevention**

**Phase II: Detection and Response**

**Phase III: Recovery and Mitigation**

#### **Phase I: Preparedness and Prevention**

This phase includes preparation for an event of public health significance and prevention of circumstances leading to emergencies.

- Identify state, regional, and local agencies and organizations that currently serve and support these vulnerable populations.

- Convene stakeholder meetings to identify specific needs of vulnerable populations during emergencies and to discuss roles and responsibilities of responding and support agencies and organizations during these emergencies; periodically reconvening these meetings to maintain familiarity of the developed plan..
- Create and maintain a contact list of these agencies and organizations that typically serve the identified populations.
- Collect and analyze population health status data to identify and enumerate the various vulnerable populations within the state, health district, and county levels.
- Characterize groups based upon their risk and degree of vulnerability by type of event.
- Develop communication materials and prepare communication strategies targeting vulnerable populations.
- Develop specific strategies to effectively respond in assisting vulnerable populations during emergencies.

## **Phase II: Detection and Response**

This phase includes the detection of and response to an event of public health significance depending upon the nature of the incident, the appropriate response will be determined and acted upon using appropriate annexes, Standard Operating Procedures(SOP) and Standard Operating Guides(SOG).

The Division of Public Health response activities will be event specific.

- Alert stakeholders to implement the developed plan and convene as soon as practical to discuss challenges and proposals to overcome those challenges.
- Maintain communication with the stakeholders to prioritize assistance requested and determine whether the needs of each vulnerable population are being met.
- Deploying pre-designed communication messages to vulnerable populations
- Implement epidemiologic surveillance to detect and respond to public health needs of the vulnerable population.
- If an event requires sheltering of vulnerable populations, then the Georgia Department of Human Resources Guidelines for the Care of Populations with Special Needs During Disasters and Emergencies (2006) should accompany this plan.

## **Phase III: Recovery and Mitigation**

Recovery is the transition to normal operations. Short-term recovery actions are taken to assess damage and return vital life-support systems to minimum operating standards. Long-term recovery may go on for years and involve the development, coordination and execution of services. Mitigation minimizes the adverse impact of an emergency and reduces the vulnerability to future emergencies. Mitigation measures may be implemented at any time.



- Public Health District Directors and local Directors of Public Health coordinate with stakeholders as vulnerable populations transition from requiring assistance to being self-sufficient.
- Establish a process to ensure continuation of assistance as needed during the entire recovery phase.
- Convene post-event stakeholder meeting or meetings to determine whether the needs of vulnerable populations have been met and revise plans and develop strategies to strengthen the plan.

## V. ACTIVITIES

The planning activities for assisting vulnerable populations during an emergency will be conducted in 5 stages.

**Stage 1 :** Staff from DPH including representatives from Emergency Medical Services(EMS), Emergency Preparedness, Nursing, Epidemiology, and the Division of Mental Health, Developmental Disabilities, and Addictive Diseases (MHDDAD) will identify specific portions of the Georgia population who are likely to be “vulnerable” during an emergency and will attempt to identify their level of “vulnerability.”

**Stage 2:** DPH and MHDDAD will identify stakeholders amongst state government agencies to determine and document their roles and responsibilities for the identified vulnerable populations; community organizations that advocate for their welfare; and the business community, including businesses that provide critical community infrastructure, such as communications and power companies, to help determine responses needed to assist vulnerable populations in a disaster setting

**Stage 3:** DPH will develop a general framework for assisting vulnerable populations, including definitions, characteristics, anticipated needs, and potential resources to help meet those needs.

**Stage 4:** Once the vulnerable groups have been identified, a framework for planning will be developed to assist health districts and counties in planning for vulnerable populations in their communities. In addition to identifying locally-specific characteristics, anticipated needs, and available resources, the plan will include procedures such as communication pathways, distribution of goods and services, and provisions for on-site assistance to help ensure survival and recovery of the vulnerable populations.

**Stage 5:** Planning for assisting vulnerable populations and their continuity of support and supportive care in the event of an emergency will be addressed in an appendix.

## **VI. Roles and Responsibilities**

[To be determined during planning]

## **VII. ADMINISTRATION AND LOGISTICS**

Initially, the local community will be responsible for assisting vulnerable populations during emergencies. However, if the event overwhelms local administrative support, GEMA and DHR will address the requirements for support collaboratively. Logistical support assisted by GEMA will be achieved under the existing emergency response protocols.

## **VIII. PLAN DEVELOPMENT AND MAINTENANCE**

DPH will review and revise this plan annually.

## **IX. AUTHORITIES AND REFERENCES**

1. Association of State and Territorial Health Officers. *At Risk Populations and Influenza: Planning Guidance for State, Territorial, Tribal, and Local Health Departments (DRAFT), for comment April 15, 2008.*

This document provides a comprehensive framework of planning considerations with criteria for defining and identifying vulnerable populations. It offers strategies and templates of successful programs and projects that have been implemented locally to reach specific segments of vulnerable populations. The document includes strategies to effectively communicate and educate these populations as a key element to their survival during a disaster.

## **X. APPENDICES**

**Attachment A :** DHR Shelter Levels of Care

**Attachment B:** Essential Services of Public Health During an Emergency

**Attachment C:** *Identifying Vulnerability and Communicating Through Other Organizations*

**Attachment D:** Example of Generic Information to use in response to Vulnerable Populations  
during an emergency

**Attachment E:** Georgia Department of Human Resources Guidelines for the Care of Populations with Special Needs During Disasters and Emergencies  
(2006)

## LIST OF REFERENCES

- ASTHO. At Risk Populations and Influenza: Planning Guidance for State, Territorial, Tribal, and Local Health Departments. Draft for public comment, 2008.  
[http://www.astho.org/pubs/ARPP\\_Guidance\\_041508.pdf](http://www.astho.org/pubs/ARPP_Guidance_041508.pdf) (accessed April 15, 2008).
- Assistant Secretary for Preparedness and Response. "Pandemic and All Hazards Preparedness Act: Progress Report Public Law 109-417." Washington D.C.: Department of Health and Human Services, 2007.
- Bureau of Justice Assistance. "Logic Model." Center for Program Evaluation.  
[http://www.ojp.usdoj.gov/BJA/evaluation/glossary/glossary\\_1.htm](http://www.ojp.usdoj.gov/BJA/evaluation/glossary/glossary_1.htm), (accessed November 24, 2008).
- Centers for Disease Control and Prevention. "Influenza: The Disease."  
<http://www.cdc.gov/flu/about/disease/index.htm> (access November 28, 2008).
- Centers for Disease Control and Prevention. "Key Facts about Seasonal Influenza (Flu)."  
The Influenza. <http://www.cdc.gov/flu/keyfacts.htm> (accessed November 28, 2008).
- Centers for Disease Control and Prevention. Public Health Workbook to Define, Locate, and Reach special, Vulnerable, and At- Risk Populations in an Emergency. Draft, CDC, Atlanta, Georgia, 2007. [www.bt.cdc.gov/workbook](http://www.bt.cdc.gov/workbook) (accessed January 10, 2008).
- Georgia Emergency Management Agency. "Georgia's Emergency Operations Plan" (January 2008)  
[http://www.gema.ga.gov/ohsgemaweb.nsf/46f83d65829d0a698525711f004a23d7/30c5ce607328558f8525720900627e3a/\\$FILE/GEOP%20Updated%20January%202008.pdf](http://www.gema.ga.gov/ohsgemaweb.nsf/46f83d65829d0a698525711f004a23d7/30c5ce607328558f8525720900627e3a/$FILE/GEOP%20Updated%20January%202008.pdf) (accessed November 8, 2008).
- Grays Harbor Public Health and Social Services Department and Environmental Health Division. "After Action Report Windstorm Response, December 2007: A Report to the Board of Health." (January 24, 2008)  
[http://www.ghphss.org/files/PDF%20Files/After%20Action%20Report%20Windstorm%20Dec%202007\\_1.pdf](http://www.ghphss.org/files/PDF%20Files/After%20Action%20Report%20Windstorm%20Dec%202007_1.pdf).
- Haque, Azizul, Didier Hober, Lloyd H. Kasper. "Confronting Potential influenza A (H5N1) Pandemic with Better Vaccines." *Emerging Infectious Diseases* 13, no. 10 (2007), <http://www.cdc.gov/EID/content/13/10/1512.htm>.

- Innovation Network. "Logic Model Workbook, Appendix A, 2005." Washington D.C.: Innovation Network, 2006.
- Kindt, Michael. *Building Population Resilience to Terror Attacks: Unlearned Lessons from Military and Civilian Experience*. Maxwell AFB, Alabama: USAF Counterproliferation Center, 2006.
- Lehrer, Jim. "Public Opinion after Katrina." *One Line Newshour*. Public Broadcasting Service (September 9, 2005) [http://www.pbs.org/newshour/bb/politics/july-dec05/opinion\\_9-09.html](http://www.pbs.org/newshour/bb/politics/july-dec05/opinion_9-09.html) (accessed November 25, 2008).
- Middaugh, John. "Pandemic Influenza Preparedness and Community Resiliency." *Journal of the American Medical Association* 299, no. 5 (February 2008): 566-567.
- New Jersey Institute Technology. "TOPOFF 4 Looking Glass Exercise After Action Report." New Jersey Business Force (November 21, 2007) <http://www.njbusinessforce.org/NJBFreports.htm>.
- Perdue, Sonny. "State of Georgia, Executive Order." State of Georgia (25 August 2004) [http://gov.ga.gov/gov/exorders/2004/aug/08\\_25\\_04\\_01.pdf](http://gov.ga.gov/gov/exorders/2004/aug/08_25_04_01.pdf) (accessed November 29, 2008).
- Schoch- Spana, Monica, Chrystal Franco, Jennifer Nuzzo, and Christiana Usenza. "Community Engagement: Leadership Tool for Catastrophic Health Events." *BioSecurity and BioTerrorism: BioDefense Strategy, Practice, and Science* 5, no. 1 (2007) 8-25.
- Sibley, Robert. "In Search of Trust." *Canadian Medical Association Journal* 177, no.11 (November 20, 2007): 1464.
- Temporado Cookson, Susan. "Avian Pandemic Influenza." Presentation Governor's Emergency Management Conference, Savannah, Georgia, May 5, 2006.
- U.S Department of Health and Human Services. "Federal Guidance to Assist States in Improving State-Level Pandemic Influenza Operating Plans" (March 2008) <http://www.pandemicflu.gov/news/guidance031108.pdf> (accessed November 8, 2008).
- U.S. Department of Health and Human Services. "Georgia State Summit." *History Supplement. In the Great Pandemic of 1918: State by State* (January 13, 2006). <http://www.pandemicflu.gov/general/greatpandemic.html#georgi> (accessed November 8, 2008).

- U.S. Department of Health and Human Services. "How does Seasonal Flu Differ from Pandemic Flu?" [http://www.pandemicflu.gov/general/season\\_or\\_pandemic.html](http://www.pandemicflu.gov/general/season_or_pandemic.html) (accessed November 8, 2008).
- U.S. Department of Health and Human Services. "The Pandemic." *The Great Pandemic: The United States in 1918-1919*. [http://1918.pandemicflu.gov/the\\_pandemic/index.htm](http://1918.pandemicflu.gov/the_pandemic/index.htm) (accessed October 15, 2008).
- U.S. Department of Health and Human Services. "Secretary Mike Leavitt Joins Governor Sonny Perdue at Georgia Pandemic Planning Summit, USA." *Medical News Today* (January 16, 2006. <http://www.medicalnewstoday.com/articles/36234.php> (accessed 29 November 2008).
- U.S. Department of Health and Human Services. "State and Local Government Planning and Response Activities." <http://www.pandemicflu.gov/plan/states/index.html> (accessed November 8, 2008).
- U.S. Department of Health and Human Services. "What is an Influenza Pandemic?" March 21, 2007). <http://www.pandemicflu.gov/faq/pandemicinfluenza/2008.html> (accessed November 8, 2008).
- U.S. Department of Health and Human Services. "Why are pandemics such Dreaded Events?" March 21, 2007. <http://www.pandemicflu.gov/faq/pandemicinfluenza/1108.html> (accessed November 8, 2008).
- White House. *Homeland Security Presidential Directive/ HSPD 21* (October 18, 2007) [www.whitehouse.gov/news/releases/2007/10/print/20071018-10.html](http://www.whitehouse.gov/news/releases/2007/10/print/20071018-10.html) (accessed November 2007).
- Wingate, Martha Emily Perry, Paul Campbell, Prabu David, Elizabeth Weist. "Identifying and Protecting Vulnerable Populations in Public Health Emergencies: Addressing Gaps in Education and Training." *Public Health Reports* 122 (May- June 2007): 422-426.

THIS PAGE INTENTIONALLY LEFT BLANK

## **INITIAL DISTRIBUTION LIST**

1. Defense Technical Information Center  
Ft. Belvoir, Virginia
2. Dudley Knox Library  
Naval Postgraduate School  
Monterey, California
3. Richard Bergin  
Naval Postgraduate School  
Monterey, California
4. Robert Josefek  
Center for Homeland Defense and Security  
Monterey, California
5. Bruce Jeffries  
Georgia Division of Public Health  
Atlanta, Georgia
6. Dan Stowers  
Georgia Emergency Management Agency  
Atlanta, Georgia